THE

'MEN'S OWN' BROTHERHOOD,

MALVERN LINK.

To

First Class

PRIZE

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THE DOCTOR AT HOME

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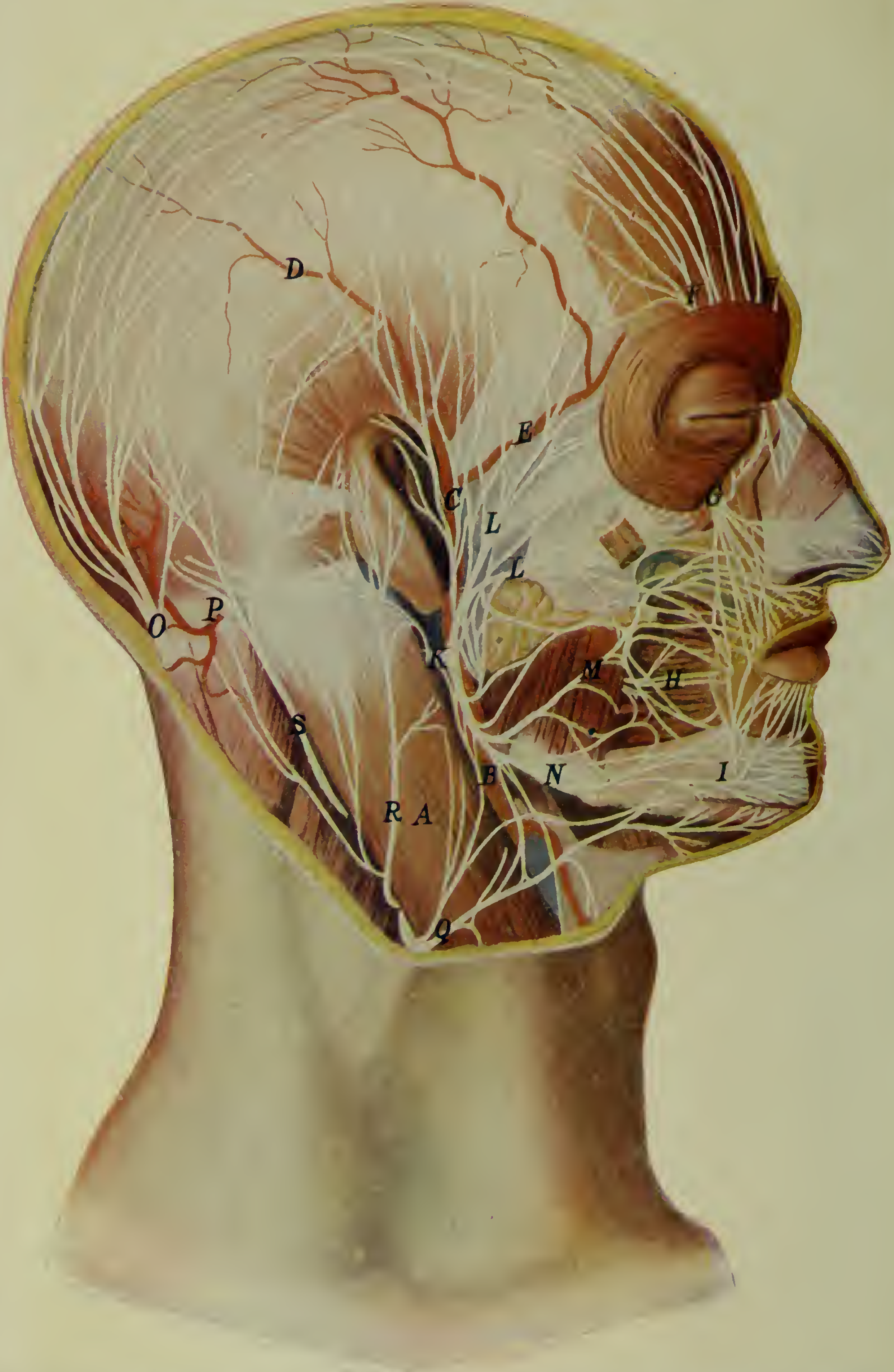
MOTOR AND SENSORY NERVES OF SIGHT.



A, Sternocleidomastoideus. *B*, Carotid Artery, with branches *C* (temporal), *D* (ear), *E* (frontal), *F* (supraorbitalis), *G* (infraorbitalis), *H* (masticatory), *I* (lower jaw), all belonging to the Trigeminus. *K*, Main Trunk, with branches (*L*, *M* and *N*) of the Facialis. *O*, Occipital Nerve. *P*, Occipital Artery. *Q*, *R*, *S*, Nerves of the Throat, Ear and Occiput.

THE
DOCTOR AT HOME
AND
NURSE'S GUIDE-BOOK

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A Practical and Comprehensive Manual for the Treatment
of Disease and the Maintenance of Health
Easily consulted and readily understood

With special directions respecting the various ailments
and disorders of childhood and womanhood

Edited by
GEORGE BLACK, M.B., Edin.
AND OTHER EMINENT AUTHORITIES

Illustrated with Coloured and Photographic Plates

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PREFACE

WHEN one is in search of information on any particular subject, and it is necessary to obtain it speedily, what arrangement of matter can be more convenient or more helpful than that of a Dictionary, whose contents are disposed in alphabetical order ?

In no work is this mode of arrangement more desirable than in one devoted to an exposition of the healing art, as far as it may be practised in the home circle when medical assistance is unavailable, or the aid and advice of the family doctor cannot be immediately procured. It is a pleasant reflection that the treatment and alleviation of disease, and the nursing of the sick are far better and more generally understood to-day than they were in the times of our fathers ; and it is to help to further the knowledge of all that should be done at home, as well to prevent and ward off disease as to effect more or less speedy restoration to health in those who are temporarily stricken down, that The Doctor at Home and Nurse's Guide-Book has been produced.

Its pages must speak for themselves. It is sufficient to refer the reader to them singly and collectively in order to show their purport and utility, and they alone can exhibit the multiplicity of subjects dwelt on, and the manner in which each is treated.

Grouping its contents broadly, they include the anatomy and physiology of the human body, and the vital action and functions of its various organs ; such simple surgery as may be practised at home ; a consideration of the food we eat and the beverages we drink; the influence of air, water, heat, cold, light, clothing, work, exercise, sleep, bathing, and our dwelling-houses and local surroundings in relation to health; the action and reaction of body and mind each on the other; diseases of all kinds and of all organs of the body, external and internal, their causes, symptoms, and treatment; the counteraction of the effects of poisons and irritants accidentally or purposely taken into the stomach; and the nursing of the sick, and the care of infants, children, and women, in all circumstances and at all times when attention is most needed and demanded.

In conclusion, such a book as this is in no way intended to replace medical attendance which, in all serious cases, should invariably be summoned. But there are many ailments which may be satisfactorily dealt with by means of the simple and familiar advice contained in the pages of THE DOCTOR AT HOME.

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THE DOCTOR AT HOME

ABSCESS

By the term abscess is meant a collection of matter, or pus, formed and confined in any part of the body. It is called an *external abscess* when situated in the fleshy parts, or in the cellular substance under the skin, or in the lymphatic glands, or in any other part which is so near the surface that the intervening parts between the original seat of inflammation and the surface of the body become gradually absorbed in the natural progress of the case, and the matter makes its exit externally. It is called an *internal abscess* when situated within any of the great cavities, or in some viscus or internal organ, as the lungs, liver, kidneys, etc. ; in which cases the matter only now and then finds its way into the natural cavities which contain the viscus, or now and then, by adhesive inflammation and succeeding ulceration, into other natural passages, as the bowels, the bladder, or the air-vessels of the lungs. A *gumboil*, a *whitlow*, and the large and painful collection of pus frequently formed in the female breast during suckling, are all instances of abscess. There is no structure or organ in the body which enjoys immunity from the possible formation of pus and consequent abscess.

ABSCESS, ACUTE INFLAMMATORY

The symptoms by which we may know an acute inflammatory abscess are these :—A very hot and painful swelling is covered by stretched skin of a bright red hue, most intense at the centre. As the swelling increases in size the pain becomes very severe, and has a characteristic throbbing or pulsating character. In the further course of the affection the skin and subjacent soft parts around the inflamed swelling become puffy, and retain for a short time the impression of the finger. As the centre of the abscess grows more painful and more inflamed it loses its hardness, and gradually ripens or breaks down into pus. The skin at this part gets thinner and more prominent, and loses its bright red colour, presenting the well-known sign of *pointing*—a light yellow or bluish spot. The whole swelling is now soft and, by making gentle pressure alternately with the fingers of each hand, a sensation may be generally felt of a small wave of fluid moved from side to side. The abscess finally bursts, and discharges the contained pus through one or more small apertures formed in the thinnest and most distended portion of the skin. The discharge at first is profuse and consists of a thick yellowish fluid ; as the cavity of the abscess contracts and closes, it becomes clear and thin. The progress of an abscess towards ripening and the discharge of pus is usually accompanied by constitutional symptoms, proportional in severity to the size of the swelling and the amount of inflammation. These symptoms are shivering, general uneasiness, feverishness, headache, and wandering pains in the back and joints. Acute abscess is generally the result of debility or a depraved state of the blood, and is often met with after fever and during suckling. In persons who have subsisted for some time on bad or insufficient food, any slight injury, as a bruise or cut, may result in inflammation and the formation of pus. Inflammatory diseases of bones and glands in scrofulous subjects are frequent causes of abscess.

The treatment of an acute abscess, once it has formed, must be left to the surgeon, for once suppuration is fully established and the presence of pus or matter is undoubted, the abscess should be opened without delay, so as to provide a free outlet for the pus. There is no advantage in allowing an acute abscess to go on developing until it reaches the skin, for this simply leads to a much more extensive destruction of tissue and the formation of a much larger cavity than would have occurred had the matter been released at the proper moment. Before the abscess has fully developed much may be done to relieve the pain and diminish the local congestion. The inflamed part should be raised as much as possible and kept at rest, and heat may be applied with advantage by means either of poultices or fomentations. Poultices retain the heat for the longer time, but fomentations are cleaner and less likely to give rise to trouble when the abscess is in due course opened.

ABSCESS, CHRONIC OR COLD

In this variety of abscess the symptoms are much less severe than in the acute inflammatory abscess. The swelling increases in size very slowly and with little pain or tenderness. The skin remains for a long time free from inflammation or puffiness, until the pus has collected in such quantity as to cause its distension and attenuation. There is then a slight blush of redness and the matter, or pus, is discharged through a small opening as in the acute abscess. This variety is known by the name of chronic or cold abscess. Chronic abscesses nearly always have their origin in breaking down of tubercular glands or in tubercular disease of bones or joints. They are therefore of much graver significance than are the majority of acute abscesses, and a considerable proportion of cases have an unfavourable termination. The treatment throughout should be left entirely in the hands of a surgeon, as the dangers of septicæmia or blood-poisoning are considerable. The most scrupulous antiseptic precautions have therefore to be adopted, and vigorous surgical measures are usually called for. Old-fashioned lines of treatment, such as poulticing, are likely to end in the death of the patient.

ABSCESS IN THE EAR

usually begins with intense itching, and then passes on to acute pain. There are commonly continual ringing in the ears and deafness. A little boracic ointment will ease the itching, and the formation of matter will be assisted by the use of hot fomentations. A few drops of a 10 per cent. lukewarm solution of carbolic acid in glycerine, prevented from escaping by a plug of cotton-wool, will be grateful. The abscess takes a considerable time to break, but when this has happened the ear must be gently syringed with a warm 1 per cent. solution of izal, dried, and plugged with cotton-wool (changed often, since it speedily absorbs the discharge). It is essential to keep the ear sweet and clean, to avoid cold and draughts, to take healthy exercise regularly, and to live carefully. Tonics may be necessary for some time, if the system be at all run down. There must be no tinkering whatever with the ear, and should the abscess need to be opened, this must be done by a doctor.

ACCIDENTS, REMOVAL OF PERSONS INJURED BY

Accidents are often rendered more painful and more severe by the awkward manner in which, with the best intentions, the sufferer is carried with the limbs dangling or rolling about. There is generally little difficulty in finding out a fracture of the leg, thigh, forearm, or upper-arm, especially if it be at or near the middle of the bone, because not merely is the sufferer incapable of lifting up the limb, but in an attempt to do so there will be an unnatural bending and grating motion at the injured part. In many cases of fracture the signs are not so evident, particularly when in the neighbourhood of a joint. A person who has broken his arm, either above or below the elbow, will find it least painful to place the forearm at right angles with the upper-arm, in a broad sling, which will contain it from the elbow to the points of the fingers ; and, should he not have far to go, he will find that walking will cause much less pain and shaking than conveyance in a carriage of any kind. If the leg or thigh be broken, a hurdle, door, or shutter, covered with straw, coats, or blankets, may be converted into an excellent litter, which should be laid down by the side of the sufferer, who should be gently and quickly lifted or slid on it, by as many persons as are sufficient to raise him up a very little from the ground, and by no more, as the greater the number of assistants, the less likely are they to act together efficiently. The shutter or hurdle should be carried by hand, two persons at each end taking hold of it and all marching in broken steps as they move along. If a couple of poles can be procured and fixed across beneath each end of the hurdle, the bearers will carry with less fatigue both to themselves and the patient. If no shutter or hurdle can be obtained, no bad substitute will be made by fastening four stout poles together and tying a blanket securely to them, so as to resemble the frame and sacking of a bedstead, and upon this the injured person can be laid. Hand carriage in either of these ways is infinitely easier than being moved in a coach or cart, for every jolt over an irregularity in the road produces motion in the broken bone and a proportionate degree of pain. Before placing the person on the hurdle, shutter, or blanket, it is a good plan to string the sound limb close to the broken one and tie them firmly with two or three handkerchiefs ; this will give great support to the injured limb and prevent any unnecessary movement. Besides this, a pillow or long pad of straw should be placed on the outside of the limb to render it steady. In placing the limb, great care should always be taken to lay the broken part as nearly as possible in its natural direction ; for, if this be not attended to, and the broken part be left bent, it is not improbable that one or other end of the bone will be thrust through the skin, constituting a compound fracture and thereby greatly increasing the mischief.

ACIDITY OF THE STOMACH

is a frequent symptom of indigestion and arises from the food taken being converted by decomposition into an organic acid. The treatment consists in avoiding those articles of food which produce acidity, as sugar, butter, and starch, and taking medicines which will correct it. One of the best of these is bicarbonate of potash, which may be taken with some tonic, as tincture of orange peel, in doses of ten to fifteen grains, three or four times a day. In mild cases a soda mint tabloid may effect relief, and therefore those who are subject to the complaint should have a supply at hand until the stomach has recovered tone. For more serious attacks the bismuth mixture (subnitrate of bismuth, 10 gr. ; tincture of rhubarb, 1 dr. ; syrup of orange, 1 dr. ; infusion of gentian to 1 oz.) should be taken thrice daily, half an hour before meals. Acidity always arises either from having eaten too much food, or food of a quality which the stomach could not dissolve. Tea, cake, pastry and alcohol should be avoided ; the bowels should be regulated and outdoor exercise should be regularly taken.

ACNE

a term frequently applied to an affection of the skin sometimes spoken of as pimples, blackheads or fleshworms. It is often the cause of much unhappiness to young people. Few persons pass through the period between fifteen and twenty years without having some development of the pimples of acne, although in comparatively few are they sufficiently numerous or lasting to warrant medical interference. The seat of acne is in the sebaceous or oil glands of the skin, and the eruption shows itself as papules or pustules (commonly called pimples) of various sizes, scattered more or less abundantly over the face, neck, back, and chest. Each spot generally takes from a few days, say four, to a week or ten days to run its course (although in the indurated form they may last weeks), and the disease is kept up by fresh crops appearing from time to time. Generally, however, these inflamed papules or pustules are not the only signs of disorder of the sebaceous glands, but we have associated with them numerous little black specks in the skin ; these are popularly called flesh worms, or grubs, because of the resemblance which the little masses pressed from them have to a worm, and because of the popular idea that they are indeed flesh worms. The foundation for the notion that these plugs which can be squeezed out are themselves worms or insects, lies in the fact that there is in reality a micro-organism which inhabits these glands. It is called the *demodex* or *steatozoon folliculorum* ; its length is from 1-150th to 1-75th of an inch, and its breadth about 1-585th of an inch. But this micro-organism is perfectly harmless and entirely innocent of setting up the disease, as it is not supposed that it has the slightest effect in producing any disorder of the sebaceous glands. Several may be found in a single plug, or again, many plugs may be examined without discovering any of them. Their existence is mentioned only to remove common but erroneous impressions on the subject. Acne is one of the few diseases of the skin peculiar to a particular time of life. It may be said never to occur in young children ; is rarely if ever, seen before twelve or fifteen years of age, and is rare after thirty ; although the rosaceous form may occur much later, even up to fifty years of age. While acne is a disease of the sebaceous glands, it is not regarded solely as such, for it has relations with the rest of the system which it is important to bear in mind. Indiscretions in diet can bring on fresh spots at almost any time ; the articles which do this most frequently and most certainly are rich fried foods. Pastry of all kinds should be largely avoided by those subject to acne, as also nuts, raisins, and cheese, hot bread, cake, preserves, etc. It is not the fat in these things which is bad, for oils are frequently given internally in acne. Butter, also, which is popularly supposed to be so harmful, is not so unless it is burned or melted into other substances. One of the most frequent causes of acne in those of older years is the use of fermented liquors, ales, beer, and wine, and it is often quite impossible to remove the eruption while these are persisted in ; and their use again may cause a relapse. Total abstinence from all alcohol is essential in this as in other skin diseases, and the practice of teetotalism once acquired should never be allowed to lapse. Acne has also relations with internal states which often require very careful medical investigation ; for in by far the larger number of cases in those who have the eruption after the age of twenty, derangements of the urine will be found, as shown by chemical and microscopic examination, which indicate disorders of digestion, imperfect liver action, etc. Again, constipation is a very frequent accompaniment of acne and a cause of its obstinacy, and frequently requires medical care, although home measures may benefit this, and with it the eruption, to a certain extent. It is not sufficient to use occasional purgatives, nor to keep the bowels acting with the mineral waters or injections, although these are of more or less service, and may serve to keep the eruption in check. In regard to the actual treatment of acne, the measures suited to different cases vary so greatly that no brief directions can be given. It is hardly necessary to say that there is no one remedy which will cure the disease ; for, as previously remarked, there is no such thing as an actual disease to be "driven out of the blood," as so many people imagine. Disease is wrong action, and to remove it we must set the action right. Arsenic will not cure acne, although it may come in as an aid when other causes are removed. In some cases of acne, the eruption has been excited by a particular indiscretion, either in eating or from a check of perspiration, or from some cause which has deranged the system. In these cases, therefore, what remains is really a local disease, and the eruption may be removed by local treatment only—washes, ointments, etc. A simple wash, of considerable service in acne, and quite harmless, may be made with a drachm of precipitated sulphur, a drachm of tincture of camphor, a drachm of glycerine, and four ounces of rose water. Most of the lotions advertised for these eruptions contain sulphur, corrosive sublimate, lead or bismuth. Some are harmless and comparatively inert, but many are positively injurious and so far from being curative, actually induce the complaint. Generally the body must be kept scrupulously clean and the skin stimulated by vigorous friction. It is a good habit to squeeze out the little plugs which blacken the face, but care should be taken that the skin is not bruised in the process. The squeezing-out process is best done at bedtime, when the sulphur ointment which should be applied may be left on all night. But it must be clearly understood that the squeezing must be patiently, gently and carefully performed, else there will be some risk of causing a general inflammatory condition of the skin, which may be much more troublesome to cure than the acne.

ACNE, COMMON CAUSE OF

On the face, back, and chest, where acne is developing, and where the sebaceous glands are apt to become plugged up with the black specks so often seen, the muscles of the skin known as involuntary muscles are almost entirely absent, and the secretion, having no particular expulsive force, readily becomes impacted and, if at all hard, fails entirely to gain an exit. Another reason for the presence of acne on the face is the anatomical fact that over most of the surface of the body the sebaceous glands are connected with hairs of some size, and their ducts open into the follicles of these hairs which, by their continual growth, keep the orifices of the glands free ; whereas on the smooth part of the face (nose, forehead, cheeks), neck and chest, the hairs are insignificant, and cannot thus assist in the outflow of the sebaceous secretions, and often even act as impediments by themselves blocking the openings.

ACROMEGALY

Acromegaly is the name given to a remarkable disease which principally attacks young people of either sex. It appears gradually, and is generally noticed by the patient's friends before he himself is aware that any changes have occurred. The hands and feet become enlarged, the face becomes longer and deformed, the lower jaw protrudes, and the nose, ears, and eyelids become thick, heavy and coarse-looking. The mind generally remains clear, and the muscular powers are not impaired until the disease is well advanced. Ultimately, however, there is a gradual loss of muscular strength, and the body is no longer held erect. The cause of the disease is unknown, and no rational treatment has been discovered.

ADENOIDS

(the word is derived from the Greek, **aden**, " a gland " ; **eidos**, " form ") are growths in the small glands at the back of the nose. They chiefly affect young children, but are noticeable in adults in whom their appearance in childhood was neglected. The air-passages being obstructed, the sufferer acquires a heavy, dull, listless look, seems always to have a cold in the head, becomes deaf and gives the impression of stupidity, snores heavily and "speaks through his nose." It is possible the child may outgrow them, but the safest and wisest plan is to have the growths removed by a surgeon.

ADIPOSE MATTER

The interstices between the muscles, especially in young persons, are generally filled with a substance called adipose matter, or fat, which gives to the different parts of the body a round and plump appearance. Great fatness or marked obesity is sometimes called adiposis.

AERATED OR UNFERMENTED BREAD

a term applied to bread made by a process by which light bread is produced without the use of leaven. The ordinary process of bread-making by fermentation is tedious, and much labour of human hands is requisite in the kneading in order that the dough may be thoroughly impregnated with the leaven. The aërated process impregnates the bread by the application of machinery with carbonic acid gas, or fixed air. In the production of aërated bread, wheaten flour, water, salt, and carbonic acid gas, generated by proper machinery, are the only materials employed. Besides this method, patented by Dr. Dauglish, there is the Whiting process. A little carbonate of soda is put into the flour, then a quantity of hydrochloric acid is added to the water. Whenever the hydrochloric acid comes in contact with the carbonate of soda, the carbonic acid is set free, and whilst the bread is being baked carbonic acid is evolved and common salt formed. Hydrochloric acid not being always obtainable in a pure state, some use tartaric acid instead. This forms tartrate of soda, which perhaps is not quite so desirable a compound as the hydrochlorate of soda, or common salt. Bread made in this way keeps better than that made from yeast.

AFFUSION, COLD

has been employed to reduce the temperature in cases of fever, and for this purpose it is a powerful agent. It must, however, on no account be made use of without the sanction of the medical attendant. In its action it is more sudden and more decisive than sponging or the application of lotions. The manner in which it is accomplished is as follows: the patient, having been stripped, is placed naked on a stool in an empty bath or tub, and three or four buckets of cold water, at a temperature of about 40° F., are then poured over his head and chest. The patient having been dried is then placed in bed. Cold affusion is made use of when the temperature of the body remains permanently above the normal. In its action as a reducer of temperature it is more sudden and more certain than sponging, but requires to be used more cautiously. It is also utilized where there is great stupor. Being a powerful remedy, cold affusion cannot be repeated more frequently than once in twenty-four hours. The best time for using it is at night.

AFTER-PAINS

Pains, usually more severe in those who have already borne children than in first confinements, frequently set in shortly after the termination of labour. They go by the name of "after-pains" and are caused by the contraction of the womb. Their influence is one of a salutary nature, although they may give rise to much suffering. They continue with greater or less severity for a day and a half or two days. With each contraction the amount of discharge generally increases, and there may come away from the womb at such times clots of blood which have accumulated in the interior. Unless these pains are very severe and give rise to much suffering, they do not call for interference. The pains are sometimes aggravated by putting the child to the breast, by taking food, or by the action of the bowels and bladder, but these processes cannot be interfered with. A hot poultice or flannel to the lower part of the abdomen may give some relief, but rest for ten or twelve days, or even longer, after labour, is very essential. Then the patient may be permitted to sit up in the bed or on a couch for a few hours daily, but she must not leave her room till the end of the third week.

AGUE

or intermittent fever, is a fever consisting of paroxysms or periods of fever, between each of which there is a distinct and perfect intermission from febrile symptoms. There are several kinds or species of ague, but the quotidian, which returns every day ; the tertian, which returns every other day ; and the quartan, occurring on the first and fourth days, are the principal. It is likewise termed autumnal ague when it happens in autumn, and vernal when in the spring.

AGUE, CAUSES OF

The chief predisposing cause is debility, however induced ; but the grand exciting cause is marsh miasma, or the effluvia arising from stagnant water, or marshy ground, impregnated with vegetable matter in a state of putrefactive decomposition. Dampness and the night air are particularly favourable to the full operation of marsh miasma. Ague does arise, however, from other causes than marsh effluvia ; and it may be produced by sympathy or irritation in the stomach and intestines.

AGUE, SYMPTOMS OF

Every fit of ague consists of three stages : a cold, a hot, and a sweating stage. In the cold stage the face and limbs become pale, the features shrink, the sensibility is greatly impaired, the breathing short and anxious, and a sensation of severe cold is felt over the body, succeeded by shivering and violent shaking. Afterwards, the heat of the body returns, and soon becomes dry, burning, and much above the normal ; the countenance is now flushed and tumid ; there is often acute pain in the head, sometimes slight delirium ; the pulse is strong, full, and frequent, and the thirst urgent. These symptoms are followed, first, by moisture of the skin, and then by general and equable perspiration, which terminates the fit. The whole paroxysm lasts about eight hours. In the intermission, the countenance is apt to be pale and shrunk, and the constitution may be affected with languor and feebleness. In the beginning of agues, however, the patient is sometimes free from indisposition. Spring agues are, in general, less severe and less obstinate, and less liable to be followed by dangerous complications, than the autumnal ; they are also less likely to return.

AGUE, TREATMENT OF

Ague is a very curable disease, and in the United Kingdom at least very simple measures may be taken. At the beginning of the actual fit, the patient should be placed in bed between the blankets, and partake freely of warm, diluted, but not stimulating drinks, as water-gruel, barley-water, etc.; and twenty drops of laudanum may be given in a little cinnamon water. In some cases the laudanum is most useful when given directly the cold fit is felt to be approaching; in others, after the onset of the hot fit. One scruple of the subcarbonate of ammonia, with eight grains of the compound powder of ipecacuanha, and an ounce and a half of peppermint water, form a draught of much service in moderating the attack, when given on the invasion of the cold fit. There is no occasion to be over-fussy during a paroxysm, as the patient will come out of it all right. Of all remedies none is more valuable than quinine and arsenic in the treatment of ague. Quinine is an alkaloid obtained from various species of bark growing in Peru and on the slopes of the Andes; other alkaloids, as cinchonine, cinchonidine, and quinidine, are also present in the bark, and exercise a beneficial effect. Given in large doses quinine is apt to produce giddiness, singing in the ears, and deafness, but these effects will pass away in time. Four or five grains of the sulphate of quinine taken every four or six hours during the interval of an ague fit will generally cure the patient. Very often the cure is immediate, and the patient has no more attacks: more often he has one or two very slight ones, and then becomes convalescent. In hot countries larger doses may be required, and for travellers in aguish districts nothing is more valuable than a plentiful stock of quinine. If a relapse take place, quinine or cinchonine must again be resorted to. Sometimes quinine is disliked, and then arsenic may be tried, but it is very poisonous, and must only be given under medical advice; the injurious effects that should be looked for are soreness of the throat, vomiting, diarrhœa, pains in the abdomen, sweating, and redness of the eyes and nose.

AIR, CHEMICAL COMPOSITION OF

Air is a mechanical mixture of oxygen (the life-giving principle of nature) and nitrogen, an inert gas apparently added merely to dilute the more active and more stimulating ingredient. In pure air the nitrogen forms by bulk nearly 79 per cent., and the oxygen 21 per cent.; but, as ordinarily found, there are besides from three to six parts in the ten thousand (·03 to ·06 of 1 per cent.) of carbonic acid, with traces of watery vapour and of ammonia.

In 100 parts of pure air there are—

Oxygen	20·99	parts
Nitrogen	78·97	,,
Carbonic acid	·04	,,
Watery vapour Ammonia Ozone		traces.

AIR FROM LUNGS, IMPURITY OF

The proof that carbonic acid is given off by the lungs and rejected in once-breathed air is very simple, and can be obtained by any one in a few minutes. This test only requires a small glass tube, eight or ten inches long, and half a pint of lime water, easily made by slaking a lump of lime about the size of a walnut in a quart or so of hydrant-water. All you have to do is to dip the end of the tube to the bottom of the bottle of lime water, and then breathe out the air from your lungs for half a minute through the pipe, so that it may bubble up through the water. The clear fluid will very soon become cloudy, almost milky, from the formation of carbonate of lime by the union of the carbonic acid expired from your lungs with the lime which the water has dissolved.

AIR IN ILL-VENTILATED PLACES

As air which has been breathed has lost some of its life-giving power, and has, besides, become contaminated with useless and injurious refuse materials, it is obvious that we had better avoid taking it again into our lungs, even were it as pleasant as fresh draughts of the atmosphere. How much more, then, must every person shrink from inhaling into the very recesses of his or her body air which is loaded with foul emanations and worn-out refuse cast off at every breath by people in crowded places, in ill-ventilated halls, lecture-rooms, theatres, etc. If it were anything else but air, the idea of using it thus at second-hand, after its ejection by dirty and possibly diseased and unwholesome persons, would be disgusting ; but because the impurities are invisible, they are drawn into the lungs of men and women, without a thought of their origin or of their poisonous nature. Many persons suppose that they fulfil all the laws of cleanliness when they have bathed and washed the surfaces of their bodies sufficiently with pure water. But cleanliness, in its most comprehensive sense, cannot be carried out to meet the wants of the animal economy unless the lungs and skin are equally well bathed with fresh air. " Our senses revolt," says one writer, " at the mere offer of dirty water to drink ; but Nature displays an equal repugnance when dirty—that is, impure—air is offered for breathing ; and no less injustice is done to the lungs by the inhalation of foul air, in which are floating, at the same time, particles of fine dust, arising from different substances in manufacture, than would be to the skin, if, first ditch or gutter water, and then sand and dirt, were sprinkled over it. The very idea of swallowing, or even tasting, the fluid substances ejected as excreta, or thrown off by disease from the body of another person, or even from our own, is abhorrent to all ; and yet how few scruple about receiving into their lungs, by respiration, the impure exhalations from the lungs of everybody in the same room with themselves ! But they are doing more : they are inhaling not only the foul air which escapes from the lungs, but, in addition, the cutaneous emanations as well."

AIR-PASSAGES, FOREIGN BODIES IN

Morsels of food more frequently than other substances get into the larynx or trachea, the accident happening when a person is engaged in laughing or talking when the mouth is full of food. The symptoms are sudden spasmodic cough, protrusion of the eyes from the sockets, blood or froth issuing from the mouth and nose, while the patient gasps for breath, turns black in the face, and perhaps becomes insensible. If the morsel of food be light and of small size, it is sometimes expelled during a fit of coughing. Many bodies may find their way into the larynx and trachea—coins, cherry-stones, beans, or in fact anything which may happen to be in the mouth—and their presence sets up precisely similar symptoms. When such an accident happens, a spectator should at once put his forefinger down the throat and try to seize the foreign body. If this is not successful, inversion of the body, combined with a shaking or jogging motion, or a smart slap between the shoulders, will sometimes cause the offending article to fall from the larynx. Should respiration be still suspended, the doctor must be fetched instantly and, in the meanwhile, cold water should be flung on the chest to arouse breathing, and artificial respiration must be resorted to. The operation of laryngotomy or tracheotomy may be needed in obstinate cases.

AIRING A ROOM

It is said that a room may be aired or ventilated—that is to say, the air in the room may be completely changed and renewed—by swinging the door of the apartment rapidly to and fro. To make this effectual the window should be opened slightly at the top ; the motion of the door will expel the bad air from the room, and its place will be immediately supplied by fresh air entering through the opening at the top of the window. The air of most occupied rooms is quite unnecessarily impure. If people would only exercise the simplest precautions the air of an ordinary drawing-room need be little worse than the air outside. Heated air, as every one knows, is lighter than cold air, and the used-up air of the room tends, therefore to rise to the ceiling. The ordinary method of ventilating a room by opening a window at the top leads merely to the inrush of a current of cold air, which rushes directly to the fireplace, producing a disagreeable draught. In addition, therefore, to the window being open at the top, the lower sash should be raised some three or four inches at least, and a piece of wood should be employed to fill up the space between the bottom of the sash and the window sill. A current of air thus enters the room between the bottom of the top sash and the top of the bottom sash, the current moving in an upward direction.

ALBUMEN

Albumen and fibrine are two constituents in the body and contain the four organic elements, oxygen, hydrogen, carbon, and nitrogen. Albumen differs from fibrine chemically but very slightly. It is, however, soluble in water, and easily separable from it by heat, alcohol, nitric and other mineral acids. It is found dissolved in the blood, where it exists in the proportion of about 4 per cent. It constitutes the chief compound of nerve matter, out of which the nerves are formed. It enters into the composition of the eggs of all animals. Its property of coagulating when boiled, as in the white of egg, is well known. Fibrine is found in small quantities in the blood, but is principally distributed over the body of the muscular tissues of which it constitutes a large proportion.

ALBUMINURIA

See KIDNEYS, BRIGHT'S DISEASE.

ALCOHOLIC BEVERAGES

(French, **alcohol,** from the Arabic, **al kohol,** fine powder of antimony, used for painting the eyebrows. Later, the term was applied to highly rectified spirits, to which the Arabic term has really no application or reference).

Alcohol is a colourless, limpid fluid, possessed of a faint but pleasant odour and hot pungent taste. It constitutes the characteristic compound in all fermented liquors, and it is to alcohol that they owe their intoxicating property. The fermentation of sugar and other saccharine matter is the only means of obtaining alcohol, and the best vegetable substances from which it is to be got are naturally those containing most sugar or most starch, which starch can be converted into sugar. In the Edinburgh table will be found the percentage byvolume of absolute alcohol in several common alcoholic beverages, with the quantity of the beverage representing about one ounce of absolute alcohol. The principal alcoholic drinks in ordinary use are shown in Dobell's table which exhibits the proportions of alcohol and carbon contained in each.

Edinburgh Table

(*Health Lectures for the People*), showing the percentage of absolute alcohol in certain beverages.

Beverages.	Percentage of Absolute Alcohol.	Average percentage of absolute Alcohol.	Quantity representing about 1 oz. of absolute Alcohol.
Spirits—			
Brandy . .	50 to 60	50	2 oz. or 1 small wine glass.
Whisky .	50 ,, 60		
Gin . . .	49 ,, 60		
Rum . . .	60 ,, 77		
Strong Wines			
Sherry . .	16 ,, 25	20	5 oz. or 2 wine glasses
Port. . .	16 ,, 23		
Madeira. .	16 ,, 22		
Marsala. .	15 ,, 25		
Light Wines—			
Bordeaux (Clarets) .	6·8 ,, 13	10	10 oz. or 4 wine glasses.
Rhone . .	8·7 ,, 13·7		
Champagne.	5·8 ,, 13		
Malt Liquors			
Beer. .	1·2 ,, 10	5	20 oz. or 2 tumblers
Ale . .			
Stout .			
Porter .			

Dobell's Table

showing the weight of absolute alcohol (specific gravity 796 at 680° F.) and of carbon, dissolved, in measured quantities of spirituous liquors.

Spirituous Liquors.	1 oz. Avoir. abs.Alcohol iscontained in fluid oz.	1 oz. Avoir. Carbon contained in fluid oz
Ardent Spirits—		
Proof Spirit . . .	2·26	4·3
Whisky	2·6	5·0
Brandy.	2·7	5·0
Rum	2·8	5·3
Arrack	3·0	5·8
Gin	3·2	5·5
Wines—		
Roussillon	6·4	8·6
Sherry	6·6	10·2
Cape Madeira . . .	6·8	11·0
South African Port .	6·8	10·0
Port	6·9	10·2
Bucellas	7·3	11·2
Marsala	7·5	11·7
East India Madeira .	7·6	11·3
Frontignac. . . .	9·0	7·8
Champagne . . .	12·6	11·3
Hock	13·4	20·4
Hungarian Red Vöslau	14·1	21·2
Burgundy	15·2	23·8
Moselle.	15·2	23·3
Claret	16·3	23·4
Sauterne	19·0	27·2
Hungarian White Neszmely . .	19·0	28·8
Cider.	64·0	40·0
Malt Liquors—		
Ale, Burton, Bass(1)84/)	12·5	9·0
,, ,, ,, (3)60/	14·2	13·0
,, Pale ,, (.) 0/	19·0	17·5
,, India (Gardner, × 54/	23·0	28·0
,, Bottled Scots (Edin.)	19·0	13·1
,, Bottled Pale . .	25·0	20·5
,, "Eightpenny" .	22·7	22·2
,, Family, 1/- gall. .	24·9	22·0
,, "Fourpenny" .	25·4	23·0
Stout, Dublin(bottled)	20·8	16·7
,, London . .	21·5	18·9
Porter, London . .	35·6	26·6

ALCOHOLISM

Long-continued abuse of intoxicating liquors leads to a serious change in the blood, and then of the various tissues of the body. The liver may become fatty or hard and enlarged, the heart weak and flabby, the kidneys are liable to waste, the lungs to fail, and the patient to grow short of breath. The brain also shares the general mischief, and many of the nerve cells waste through being badly nourished ; the mind in consequence becomes affected ; there is loss of memory, giddiness at times, disagreeable dreams and restlessness at night. The patient wakes up in the morning with no appetite for breakfast, and a feeling of sickness. His nervous system, too, is weakened ; any excitement or trouble affects him ; in advanced cases the tongue and hand tremble, and he is easily made to weep. If the heart be affected, he may be troubled with fainting, which may at length prove fatal. Sooner or later the health is impaired, and any acute illness will quickly carry him off : such a course of life induces premature old age. The drink habit may be hereditary, or it may be due to poverty and miserable surroundings, or it may be caused by temptations offered by certain trades and callings. However acquired, it is the source of immeasurable misery, vice and crime. Bad in a man, it is deplorable on every ground in a woman, leading as it often does to the breaking up of the home and the infliction of great unhappiness and suffering on entirely innocent and frequently helpless persons. In its acute form alcoholism is only another name for delirium tremens, but the chronic form is to be distinguished from the acute by the absence of hallucination.

ALCOHOLISM, TREATMENT OF

Very little can be done for the habitual drunkard. A sedative may be given at bedtime to enable him to sleep better, and for the dyspepsia or indigestion which accompanies this disease, some bitter tonic, as gentian or quassia, may be administered, with nitric or hydrochloric acid two or three times a day. Where the means permit, it is very desirable to consign the victim to a home for inebriates, which may be done now without the consent of the patient. Alcoholism is largely a disease of the nervous system and sufferers should be treated accordingly. It is wise kindness to seclude them for a considerable period from all possible access to the poison. That a permanent cure will be effected in all cases cannot be said, but there is great hope of the restoration of self-respect and will-power and every opportunity of such recovery should be afforded. In rare instances it has been possible for a true friend to take the patient in hand and by exercise of unremitting vigilance and tender solicitude reclaim him or her. Where, however, isolation, on the one hand, and constant and close supervision, on the other, are impracticable, the first thing that must be done is to abandon the use of all intoxicants whatever. It is safest and most prudent to make no exceptions, not even in favour of the lightest of light wines, lager beer, and cider. The second thing is rigidly to exclude the drink—in such cases undeniably accursed—from the home. The third thing is to help the unhappy victim to help himself or herself.

ALIMENTARY CANAL

The avenue for food, or the alimentary tract, passes through the mouth into the pharynx, which it follows down directly into the gullet (food pipe, œsophagus), continuous with the pharynx, and leading into the stomach. The gullet is situated behind the upper part of the air tube (larynx and trachea), and rests against the spinal column, or backbone. It is a flaccid tube, its anterior and posterior walls being in contact, except when they are separated by the entrance of food or liquid. The gullet opens into the stomach where the food is to a large extent digested. From the stomach the food passes along through the small and large intestines, the lower part of which is known as the rectum. The alimentary canal extends from the mouth to the anus, and is, in an average man, about thirty feet long. If the mucous membrane that lines it were spread out, it would be found to be nearly fifteen square feet.

ALOES, COMPOUND DECOCTION OF

See DECOCTIONS.

ALUM GARGLE

See GARGLES.

ALVEOLAR PROCESS

(Latin, **al′veolus,** "a small hollow or cavity"; from **al′vus,** "the belly").

The alveolar process consists of two plates of bone, an outer and an inner, forming borders to the jaws and supports to the gums. These are connected by transverse plates, dividing the space into numerous cavities, which form the sockets of the teeth.

AMAUROSIS

(Greek, **amau′ros,** "obscure").

Before the ophthalmoscope enabled us to examine the interior of the eye, a number of unseen diseases were classified together under the general term of amaurosis, which was humorously, but not inaptly, described as a "disease in which the patient sees nothing and the physician sees nothing." Now this vague term is generally employed only to indicate paralysis of the optic nerve, or blindness resulting from disease of the brain. Tobacco amaurosis is a form of partial paralysis of the optic nerve, met with in excessive smokers. Excessive use of alcoholic drink is thought, by some authorities, to induce the same condition. Total abstinence from either exciting cause is absolutely necessary.

AMAUROSIS, SUPPOSED SYMPTOMS OF

There is a popular notion that floating specks before the eye, or *Muscæ volitantes*, are a symptom of amaurosis, and they consequently very often occasion much unnecessary uneasiness, particularly to persons of nervous temperament. They have the form of small spots or circles, strings of beads or gossamer threads, and float about in the field of vision. They are the shadows cast on the retina by microscopic opacities in the vitreous humour, they do not usually attract attention, and are frequently met with in perfectly healthy eyes. *Muscæ* may be made evident in any eye by looking through a small pinhole in a card at a bright light covered with a ground-glass globe. The dread excited by these specks in the minds of people who devote themselves to watching them, sometimes almost amounts to monomania. Such floating specks not seldom accompany a bilious attack and disappear when the system resumes its normal tone.

AMBULANCE

The term "ambulance" has a different signification amongst British and foreign writers. On the

Continent it means a field hospital attached to an army, and moving with it, for the primary reception and care of its sick and wounded. In the United Kingdom the term is often applied to the conveyance by which the sick and wounded are carried from the field of battle, or in towns from the site of an accident to the nearest hospital, dispensary, or doctor's. Ambulance conveyances are constructed for carrying patients, either lying at full length or sitting. The recumbent position is undoubtedly the best in the case of severe wounds and shock or faintness from hæmorrhage, as it is the position in which the several parts of the body are subjected to the least amount of concussion. The sitting posture is, as a general rule, only adapted for those whose injuries are of a comparatively slight nature. The semi-recumbent position is very desirable in wounds of the chest, owing to the feeling of oppression in breathing preventing the recumbent position, and to the jolting of the sitting. If no conveyance be at hand, the assistance of bearers must be resorted to, and it will be convenient to mention some method of affording help when only one attendant or bearer is at hand. If the wound be in the head, neck, or upper part of the trunk, the patient should partly support himself, with a stick in one hand (or musket), while his other hand and arm lean upon the upper part of the back and distant shoulders of the attendant who walks by his side. At the same time the attendant should place his near arm across the neck of the wounded man, reaching round and partly encircling his body with the forearm and hand, so as to support the trunk. If more than one attendant is available, a regular litter can be improvised. The first method they may adopt is that of carrying the patient by the two bearers joining hands beneath the thighs, while their arms which are not thus occupied are passed round his loins. A second and better method of joining two hands for the semi-recumbent support of a patient is as follows: The advanced right and left hands of the two bearers are closely locked together, and the wrists brought into contact; at the same time the other two hands are made to rest upon and, in a certain degree, grasp each other's shoulders for additional support. One of the best methods is that of a four-handed seat with crossed arms, known commonly as the "sedan-chair."

AMPUTATION

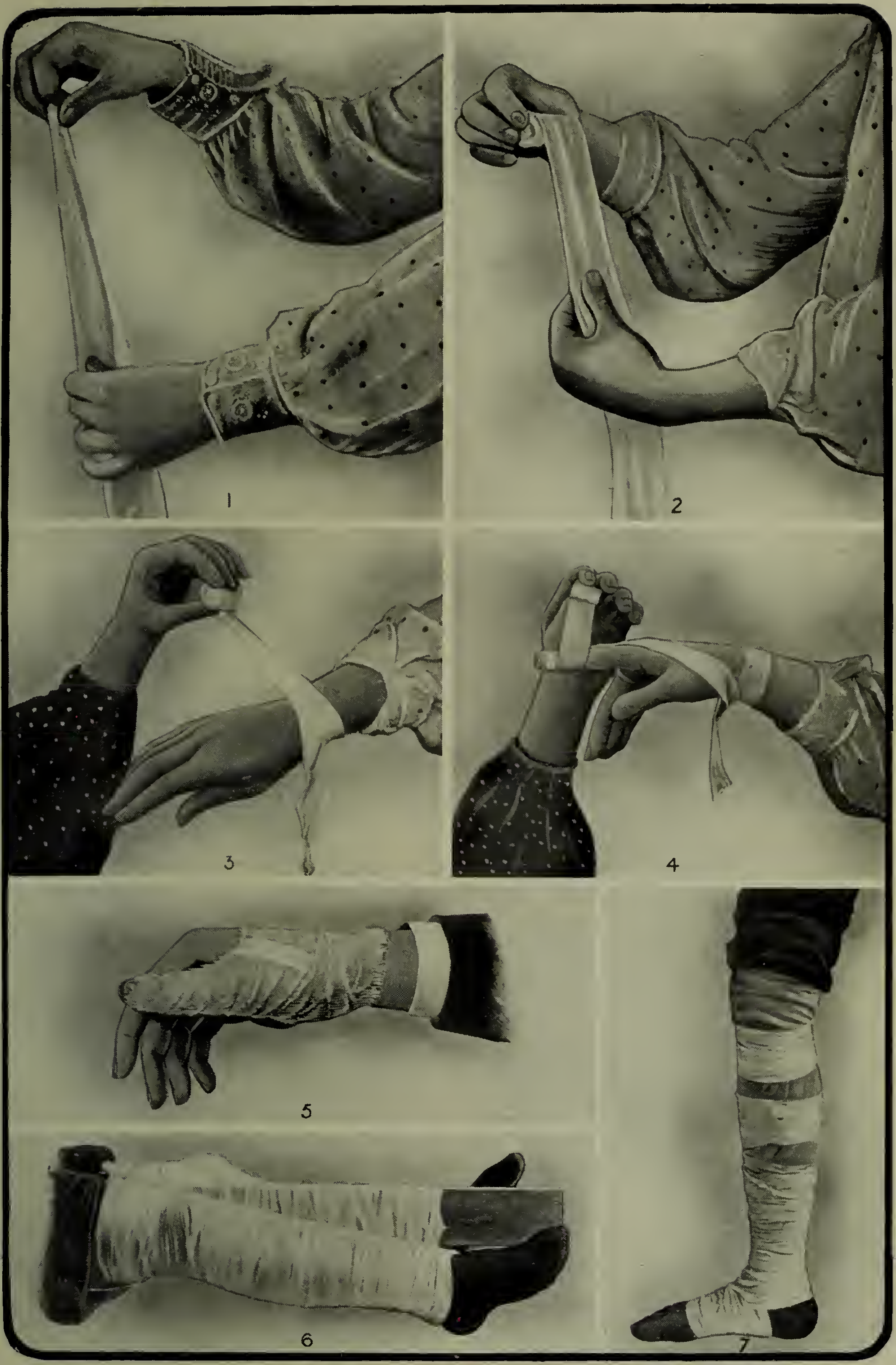
In ancient times the amputation of a limb was a much more dangerour affair than now; there was a considerable chance of the patient's dying during its performance, as surgeons had no efficient means of restraining the bleeding. They rarely risked removing a large portion of the limb, and when they did so, they cut in the gangrened parts, where they knew the vessels would not bleed. The smaller limbs they chopped off with a mallet and chisel, and in all cases they had at hand hot irons for searing the raw surfaces, boiling oil in which to dip the stump, and various mosses, fungi, and resins, which were credited with the power of arresting hæmorrhage. Some bandaged tightly the limbs they wished to remove, so that they mortified and dropped off; whilst others amputated with red-hot knives, or knives made of wood or horn dipped in vitriol. These methods of procedure, fortunately for us, are no longer required. The desired power of controlling the hæmorrhage was obtained by the invention of the tourniquet by a French surgeon—Morel by name—in 1674. The ancient surgeons tried to save a covering of skin for the stump by having the skin drawn upwards by an assistant, previously to using the knife. Towards the close of the seventeenth century it was suggested to cut semi-circular flaps on one or both sides of a limb, so as to preserve a fleshy cushion to cover the end of the bone. Both these methods are now employed, and are known as the "circular" and the "flap" operations: the latter being that most frequently used in the United Kingdom. A "flap" amputation is thus performed: "The patient being placed in the most convenient position, an assistant compresses the main artery of the limb with his thumb, or a tourniquet is adjusted over it. Another assistant supports the limb. The surgeon with one hand lifts the tissues from the bone, and transfixing them with a long narrow knife, cuts rapidly downwards and towards the surface of the skin, forming a flap; he then repeats this on the other side of the limb. An assistant now draws up these flaps, and the knife is carried round the bone, dividing any flesh still adhering to it. The surgeon now saws the bone. He then, with a small forceps, seizes the end of the main artery and, drawing it slightly from the tissues, an assistant ties it with a thread. All the vessels being secured, the flaps are stitched together with a needle and thread, and a piece of wet lint is laid over the wound. An expert surgeon can remove a limb thus in from twenty to sixty seconds."

ANÆMIA

(Greek, **a**, "not"; **haima**, "blood").

This is a condition in which there is an impoverished state of the blood, and when the patient is very pale and in a state of general debility. Anæmia may exist alone or in conjunction with other exhausting diseases, as consumption or cancer. In the first variety the patients are generally young women employed in close workshops and confined places from morning till night; or women who have lived poorly, and, having had several children, are suffering from the effects of excessive or prolonged suckling. In such people the whole surface of the skin is paler than usual, and the lips and lining membrane of the eyelids, instead of being rosy, are of a pale pink colour. There is also a feeling of general debility, and an inability for much exertion. Palpitation of the heart, headache, pain in the back and in the left side, are commonly met with. This disease arises chiefly from want of pure air and light, and from living badly. Anæmia is often associated with a temporary cessation of the menstrual function, but this is usually restored with an improvement of the general health. The habits of town life predispose to this disease in a great measure; and in all cases country air is most beneficial. In young girls, tight-lacing is often injurious, as it prevents due expansion of the chest and the free entrance of air into the lungs, a process which is most important for the various changes which are constantly going on in the blood. Persons who are anæmic are very often nervous and hysterical, and all sources of mental worry or anxiety should be avoided as far as possible.

BANDAGING. No. I.



1 and 2. To roll a bandage. 3, 4, and 5. To bandage a finger. 6. To bandage a rickety child. 7. To bandage varicose veins.

ANÆMIA, MIXTURE FOR

See MIXTURES.

ANÆMIA, TREATMENT OF

The treatment consists of moderate exercise every day in the fresh air, and working and living in well-lighted and well-ventilated rooms. The diet should be light and nourishing; a moderate amount of animal food should be taken, but anything which causes indigestion should be avoided. Stimulants should not be resorted to, but a glass of stout with a meal may be beneficial. A cold bath in the morning is often of great service, and for those who can afford it a change to the seaside or some place where the air is bracing and refreshing may be very useful. Tonic medicines are of great value, especially those which contain iron, which in many cases acts as a charm, although its use must be continuously maintained for weeks and even months. A favourite form in which to take it is Blaud's pills, thrice a day. To counteract the constipation frequently accompanying the use of iron, the best medicines are an aloes and myrrh pill, or a capsule (½ drachm) or tabloid (2 grains) of cascara sagrada. When women are at the same time suffering from over-suckling, it is advisable to wean the child. Hot and crowded rooms should be avoided, and late hours are injurious. Since anæmia may return, every care must be taken to preserve the health when this has been restored.

ANÆSTHETICS

(Greek, **a**, "not"; **aisthesis**, "sensation")

are drugs employed in major and minor operations for the purpose of producing insensibility to pain. They are of two sorts, general and local. The general include chloroform, ether, A.C.E. (a mixture of alcohol, chloroform and ether), laughing gas and ethyl chloride. The local are cocaine and eucaine. The action of the former is to render the patient altogether unconscious, whilst that of the latter is to deaden the sense of pain in the part, the patient remaining otherwise conscious. The practice is to employ an anæsthetist to administer the general anæsthetics, leaving the surgeon entirely free to carry out the operation. Every care is used to examine the fitness of the patient to undergo the drug, and it will depend upon the condition of the heart and other organs which anæsthetic is employed. There is no risk in the use of the drugs required to produce local insensibility, and they are commonly employed in the minor operations affecting the mouth, eye, ear, nose, and certain mainly superficial parts. The discovery of anæsthetics revolutionized the art of surgery, for they are an inestimable blessing to operator and patient alike.

ANASARCA

(Greek, **ana**, "through" or "throughout"; **sarx**, "flesh").

A name given to an accumulation of the watery part of the blood, called serum, in the cellular tissue of the body. It may result from pressure upon the veins in some part of their course, giving rise to excessive accumulation of fluid in the capillary vessels with consequent exudation beyond what the absorbent vessels have power to dispose of.

ANEURYSM

An aneurysm is a pulsating tumour communicating, either directly or indirectly, with the calibre of an artery. It is chiefly a disease of old age and found more often in men than women. It may affect any artery, but the aorta is most usually involved.

ANEURYSM, TREATMENT OF

The cure of aneurysm is outside of the range of domestic medicine, but the following quotation from a medical authority may prove of interest : " The chief means adopted for the cure of aneurysm are the ligature, pressure, and flexion. That by ligature consists in passing a stout hempen cord round the artery, between the aneurysm and the heart, so cutting off the current of blood through the main trunk, the circulation being gradually re-established by what is termed collateral means ; that is to say, the work of the main vessel is thrown upon its smaller branches and, by their dilatation, the blood finds its way into the limb beyond the point of ligature. This method of dealing with the disease is due to John Hunter. Pressure may be exerted upon an aneurysm either by mechanical means, such as tourniquets, or by the fingers—digital compression. The treatment by flexion consists in flexing, or bending, the limb, such as the leg upon the thigh, or the forearm upon the arm, where the aneurysm is situated." Absolute rest is imperative, the patient requiring to assume a recumbent position, it may be for months. He must not leave bed for any purpose, nor sit up for food. Aconite and digitalis to reduce the heart's action and iodide of potassium to promote coagulation of the blood are the principal drugs, but medical will in all likelihood have to be reinforced by surgical treatment.

ANGINA PECTORIS, BREAST-PANG, OR HEART-STROKE

This is, fortunately, not a disease of frequent occurrence. It comes on in paroxysms in which there is a struggling for breath, intense pains about the region of the heart, and a terrible sense of impending death. The anguish is extreme whilst it lasts, but it passes off and leaves the patient apparently tolerably well till the next attack. The face is pale, the body is covered with sweat, and the sufferer is perfectly sensible. The attack does not last long, ordinarily only a minute or two, although sometimes longer. It always recurs, but at no fixed interval, and may come on at any time—whether the patient be walking about or lying down.

ANGINA PECTORIS, CAUSES OF

The cause of these attacks is obscure : generally there is some malady of the heart itself. It may be fatty, or its own particular vessels may be diseased and the circulation through them obstructed ; both states may exist.

ANGINA PECTORIS, TREATMENT OF

Most happily, in nitrite of amyl we possess a drug that has all the attributes of a specific. If a capsule (5 minims) be crushed in a handkerchief and the vapour freely inhaled, almost immediate relief will be afforded. Failing the capsule a few drops of the liquid should be inhaled. The greater convenience of the capsules is evident, and no sufferer from angina should ever be without them either indoors or out. As, after one seizure, another is to be dreaded as likely, during the interval everything ought to be done that will conduce to the patient's health. Indigestible food, exposure to cold, every form of excitement and emotion and bodily exertion should be rigidly avoided. The sufferer must cheerfully abandon every pleasure of the table and habit of life for which he has a predilection. Should he do this honestly and never be without nitrite of amyl, breast-pang will be robbed of nearly all its terror.

ANIMAL FOOD

The flesh of animals, fat and lean together, contains every one of the elements that compose the human system, but not in the same proportion. The difference in the nutritive properties of five articles of animal food in common use is exhibited in the following table. In one hundred parts are :—

	Mineral Matter, or Food for Brains.	Fibrine and Albumen, or Food for Muscles and Tissues.	Fat or Food for Heat.	Water.
Veal .	5·0	16·0	16·5	62·5
Beef .	5·0	15·0	30·0	50·0
Mutton.	3·5	12·5	40·0	44·0
Lamb .	3·5	11.0	35·0	50·5
Pork .	1·5	10·0	50·0	38·5

These five principal meats may be classified as follows, the first mentioned under each head standing first, and the last mentioned standing last in importance :—

For heat and fat—pork, mutton, lamb, beef, veal; for muscle—beef, veal, mutton, lamb, pork; for brain and nerve—beef, veal, mutton, lamb, pork.

Thus it will be seen that while pork stands highest as a producer of heat and fat, it stands lowest among the brain-feeders, and lowest likewise among the muscle-feeders.

The common sense of the matter was succinctly summed up in the following propositions by Professor James F. W. Johnston, whose *Chemistry of Common Life*, is still worth reading :—

" First, That the dried flesh of all animals which we most usually consume for food consists essentially of fibrine.

" Second, That the proportion of fat is variable, and that those varieties of animal food are most esteemed for human food in which a considerable proportion of fat is present. Hence,

" Third, Where the proportion of fat is naturally small, we endeavour to increase it by art; as in feeding the capon. Or we eat along with those varieties in which it is small some other food richer in fat. Thus, we eat bacon with veal, with liver, and with fowl; or we capon the latter, and thus increase its natural fat. We use melted butter with our white fish, or we fry them with fat; while the herring, the salmon, and the eel, are usually both dressed and eaten in their own oil. If the reader will take the trouble of consulting any popular cookery book, he will find that sausage, and other rich mixed meats, are made in general with one part of fat and two of lean—the proportion in which they exist in a piece of good marbled beef! Art thus unconsciously again imitating nature." So animal food is highly favourable to labour, or great corporeal exertion. We can subsist longer upon it without becoming hungry, than upon vegetables, and derive, in most instances, greater strength from it. Where men are exposed to constant toil and exertion, or to extreme cold, they frequently require a more ready, more condensed, and more substantial nourishment than vegetable aliment yields.

ANKLE

The name given to the joint that connects the foot with the leg. The outer point of the joint thus called is formed by the lower end of the fibula or small bone of the leg, and the inner point by the lower end of the tibia or large bone of the leg.

ANKLE, SPRAIN OF THE

The lower extremity, and particularly the ankle joint, is the most frequent seat of sprain. In the slighter sprains of the ankle the ligaments are stretched or perhaps a little lacerated, but in severer ones they are completely torn. Severe sprains are often mistaken for fractures, and should the case be one when, from swelling and pain, there is any doubt, it should be treated as a fracture, bearing in mind that proper treatment of fracture is the best that could be adopted for a sprain. The treatment of sprained ankle consists principally in keeping the affected part completely at rest. In every case, even the mildest, the patient should keep to his bed, and should not under any circumstances whatever allow the affected foot to touch the ground. In the majority of cases the ankle should be firmly bandaged, and the foot raised by means of a pillow. This complete rest should be maintained until all signs of inflammation have disappeared and the swelling has begun to subside, after which time gentle manipulation with the hand may be practised at intervals of a few hours. The joint should not however be called upon to bear any weight so long as any pain remains. The practice of pumping on a sprained ankle or a sprained wrist is very old, and its efficacy, in many cases, proved.

ANODYNE FOMENTATION

See FOMENTATIONS.

ANODYNE LOTION. *See* LOTIONS.

ANTHRAX

Anthrax is an infectious disease widespread among animals, especially among sheep and cattle. It occurs in man as a result of absorption of the poison containing the specific bacillus. The disease occurs in various forms, these being classed into two groups, internal anthrax, and external anthrax. The principal form of external anthrax is that named malignant pustule. At the site of the inoculation pain and irritation appear within a few hours, a pimple develops, and this soon becomes a vesicle. Local inflammation with considerable swelling follows, there is usually very high fever, and in bad cases death occurs in from three to four days. The two principal forms of internal anthrax are the intestinal form, in which the disease is contracted by eating the meat or drinking the milk of diseased animals, and the form known as wool-sorter's disease. In the former the symptoms much resemble those of ordinary irritant poison; vomiting, diarrhœa, and fever being the symptoms most marked. Wool-sorter's disease is contracted by swallowing or inhaling dust from hair or wool obtained from animals suffering from anthrax. The victim becomes seized with pains in the back and legs, extreme prostration, rapid breathing, and rise of temperature. Death may occur even within twenty-four hours. Anthrax is found only in persons who work among animals or animal products, shepherds, butchers, tanners and wool-sorters being the chief persons attacked. In the way of treatment the important thing in the case of external anthrax is to destroy the site of inoculation by means of caustic or hot iron, and the use of powerful solutions of germicides. In the internal forms little can be done, but plenty of nourishing food, and large doses of quinine should be given.

ANTIDOTES TO POISONS

See POISONS AND ANTIDOTES.

ANTISEPTICS

(Latin, **anti**, "against"; **sepo**, "I make putrid").

The use of antiseptics in surgery, a practice with which the name of Lord Lister will always be associated, has been the means of diminishing the risk of mortality to an enormous degree. It makes for what has been happily called "scientific cleanliness." Antiseptic treatment, in its most comprehensive sense, aims at purifying everything connected with an operation, or with cases which might become surgical, such as difficult labour. So regarded, every instrument, dressing, application, sponge, the surrounding atmosphere, the operating table, the nurses and the surgeons, and even the operation itself are all exposed to antiseptics in some form or another—solution, wash, or spray. The principle justifying the treatment is the exclusion of bacteria and germs, the appearance of which in wounds might set up putrefaction and blood-poisoning. Every practitioner has his own preference in the matter of drugs, but the chief are carbolic acid, boracic acid, lycol, izal, thymol, eucalyptol, and corrosive sublimate. Since the adoption of antiseptic precautions puerperal or childbed fever, once the scourge of lying-in institutions, has become so rare that medical men hardly ever meet with it. Antiseptics, for similar reasons, are of great practical value in safeguarding the public health. They are constantly employed in street cleansing, the removal of offensive matter, the maintenance of urinals and water-closets and in many other sanitary processes. The name has also been given to a class of substances which give stability to organic matters, while preventing their decomposition. Familiar examples of sound antiseptic agents are salt, used for preserving meat; glacialine used for preserving milk, fish and provisions generally; sugar, used for preserving fruits; vinegar, used in pickling; creasote and the empyreumatic oils of wood, heat, etc., applied in the smoking of meat.

ANTISPASMODIC DRAUGHT

See DRAUGHTS.

APERIENT PILLS. *See* PILLS.

APERIENT. *See* POWDERS.

APEX

The name given to the lowest point or thinner end of the heart.

APONEUROSIS

A membrane of white and shining appearance, composed of interlacing fibres, generally continuous with muscular fibre; similar in structure to a tendon, but differing from it in being flat in form instead of round.

Distortion of the body or parts of it is sometimes caused by contractions, such as those of the fingers, which arise from chronic inflammation and permanent contraction of the palmar aponeurosis, of fascia, a strong inelastic and fibrous membrane attached to the projecting points of bone, and stretched beneath the skin of the palm for the protection of the nerves and other soft parts during the act of forcible grasping. There is a similar aponeurosis in the sole of the foot, which is subject, but not so frequently, to the same shortening.

APOPLEXY AND PALSY,

People are apt to confuse palsy and apoplexy. It should be understood, however, that the term "palsy," or "paralysis," represents the more permanent loss of motion and sensation, and "apoplexy" the fit which precedes it. This may, at all events, be said as to the relation of the two to each other : in the great majority of instances, a person who recovers from a real attack of apoplexy finds himself palsied on one side of the body.

APOPLEXY, CAUSES OF

The most common immediate cause of apoplexy is pressure on the brain, either from an effusion of blood or serum, or from a distension of the vessels of the brain, by an accumulation of blood in them, independently of effusion. Whatever operates in determining a great quantity of blood to the head, or in impeding a free return of it, may produce excessive distension or effusion within the cranium, and be, therefore, reckoned as exciting causes ; such as violent passions of the mind, immoderate exercise, intense study, fits of intemperance, excessive straining, ligatures about the neck, the suppression of accustomed evacuations, piles, the unrestrained indulgence of the appetites, and exposure to sudden great heat or excessive cold. This disease may happen at any age, but is most frequent about the middle or in the decline of life, especially in persons of a plethoric habit, who have short, thick necks, and who are indolent, and indulge much in eating and drinking.

"The most perfect impediment to the use of the body, short of death," writes Dr. Moore, "is that of apoplectic sleep ; but even in it we have reason to believe that the mind is often busy in dreaming. Some patients who appeared perfectly apoplectic have remembered their dreams ; and I have heard an individual, during a severe fit, continue to mutter earnestly about circumstances in which he had been previously interested, and of which, on recovery, he had no recollection. Of course, it cannot be proved that the mind is active during what presents itself to our observation as perfect unconsciousness ; yet, when all connection with the external world seems suspended, as by pressure of the brain, it is sometimes possible, by shouting in the ear, to rouse the patient to give a distinct reply. In short, there is proof that a perceiving power continues in possession of the body as long as its organs are in a state to put it in relation to things around it."

APOPLEXY, SYMPTOMS OF

In apoplexy a person, apparently in good health, is seized suddenly, perhaps in his bed, unconsciously, whilst asleep ; or he falls suddenly back when sitting in his chair, not unfrequently whilst at his meals, or soon after his dinner ; or he falls as suddenly to the ground when walking or riding, in a state of perfect insensibility : if not instantly deprived of life, which is sometimes the case, he lies motionless and powerless, with stertorous, or noisy, breathing, sometimes with eyes partly closed, but oftener staring or protruding, and his face and neck livid and swollen. This state is distinguishable from epilepsy by the absence of convulsions and contortions of the body, by a full and slow state of the pulse, and the noisy breathing. The patient is insensible to noises, incapable of motion, and the pupil of the eyes, which is usually much dilated, does not contract when exposed suddenly to a very strong light. The condition of the patient very much resembles the temporary annihilation of sense and motion in helpless intoxication, from which, indeed, it is sometimes very difficult to distinguish it, when information on this point is not attainable from his companions. It may, however, here be observed that the pulse in a drunken man is often quick, and never preternaturally slow ; and that the smell of the breath, and the nature of the matter brought off the stomach—for sickness usually attends this stage of intoxication—will often reveal the cause of his insensibility. Let it, however, be remembered that when intoxication proves fatal, it is often by inducing apoplexy. A patient generally has some warning before a fit supervenes : headache, sickness, and giddiness coming on in advanced life are threatening symptoms ; or there may be double vision, or squint, or numbness of a limb, and the familiar sensation of pins and needles ; in other cases, loss of memory and mistaken use of words are signs of the approaching attack. The duration of a fit of apoplexy is various ; but it generally lasts from eight to twenty-four hours, and occasionally to thirty-six hours, or even longer. There are two varieties of apoplexy, which are in general clearly marked, the one attended by a hard, full pulse, flushed countenance, and stertorous breathing ; the other by a feeble pulse and pale countenance. The former usually occurs in persons of a full plethoric habit, and considerable energy and strength ; the latter, for the most part, in the old, phlegmatic and feeble. Generally speaking, the latter form of the disease is the more dangerous, since, from the general failure of the energies of life, nature has less ability to assist us in the use of remedial measures. In any other point of view, the degree of danger will be generally measured by the violence of the symptoms. In general, the shorter the fit, the more favourable the prognosis. It is very doubtful whether the sudden deaths we so frequently hear of, ought to be ascribed, as is common, to apoplectic seizure, since genuine apoplexy very seldom destroys life in less than two hours. They appear to depend rather upon some violent affection of the heart or stomach, or upon the rupture of some blood-vessel larger than those of the brain.

APOPLEXY, TREATMENT OF

The treatment of this disease must obviously vary with the pathological condition of the brain, on which it depends. The skill of the physician consists in detecting what that pathological condition is, and in exactly adapting his remedies to it, which must differ widely according as he is called to treat a threatening or an actual paroxysm, or to prescribe for a patient subsequent to an attack. It is not necessary to enter into a discussion of the different remedies suited to the manifold states of the brain and of the system in the various forms and stages of this malady. There are not many parts of his science in which the physician is required to make such nice and difficult distinctions, and in which life so completely depends on the accuracy of his discrimination. At one time the vital energy of the brain is so far exhausted as of itself to threaten the total abolition of its functions ; at another time the arterial action or the venous congestion is so great as to threaten a large extravasation of blood. For states so opposite, opposite remedies must, of course, be required ; but the difficulty at all times is to interpret the outward signs aright. If together with the ordinary symptoms of drowsiness, giddiness, headache, and so on, there be a flushed countenance, a dull or suffused eye, a hot skin, a strong or full pulse, the abstraction of blood may be indispensable to the preservation of life ; but if, on the other hand, the countenance be pallid and sunk, the pulse full, and the skin cool, the smallest blood-letting may utterly exhaust the vital energies of a brain already greatly depressed. It is in clearly pointing out distinctions like these, and in guiding to the selection of the remedies appropriate to each, that science is the salvation of life. But such, too, are precisely the cases in which no skill on the part of the physician can succeed without the steady co-operation of the patient. The physician, duly weighing the premonitory signs, may foresee the impending danger and give warning of it, and precisely prescribe the medicine and regimen fitted to avert it ; but if these be either altogether neglected, or only partially followed, the disease will hold on its course, and life be lost. And this loss of life is deplorably frequent from the neglect on the part of the patient of the appropriate remedies in the primary stage of the disease, when such remedies may be employed with almost certain success ; and the same is true of the neglect of such remedies in the stage subsequent to an apoplectic paroxysm, although in this stage the best concerted measures have a much smaller chance of securing their object. As it would be vain to attempt here to enter into the modification of treatment required in the premonitory and the consecutive stages of the disease, so it would be out of place to discuss the measures proper to be adopted in the paroxysm itself. The state, both of the brain and of the system, varies in every individual case, and safe, not to say successful, treatment must in every case be modified accordingly. It is only necessary to add here that whenever a person is seized with a fit of apoplexy, he should be carried into a large room, the freest possible circulation of fresh air should be promoted around the body, which should be placed in the horizontal position, with the head, however, considerably raised. All bandages should be taken from about the head and neck—and especially from about the neck—and a medical man should be sent for instantly. Every observer of such a case should bear in mind that the loss of life may be the consequence of the loss of a minute. In cases of sudden seizure, as of apoplexy, epilepsy, convulsions, or fainting, speedy assistance is of the first importance. Some judgment is required to distinguish the nature of the attack, and long before a medical attendant can arrive upon the spot the patient may be saved or lost. Under no circumstances whatever should anything, even a drop of water, be given by the mouth. Alcohol is especially harmful.

APPENDICITIS

Inflammation of the appendix vermiformis, a narrow worm-like portion of intestine attached to the lower and posterior part of the cæcum. It is a hollow, blunt-ended tube or *cul de sac*, some three inches in length and about the circumference of a lead pencil. What object it originally served is not known, though since nothing was ever created in vain, it may be conjectured to be the remnant of an earlier kind of intestine, which has —during long ages—gradually become atrophied. But though we cannot tell what purpose it once filled, it has been a source of frequent trouble, since, in consequence of its position and shape, it has often proved to be the receptacle for foreign bodies, such as fruit stones, small bits of hard undigested food, and even fæcal matter. These articles are apt to set up inflammation, although this may also be caused by twisting of the tube or ulceration. The onset is generally sudden, with pain low down on the right side or across the abdomen, with reference to a particular spot. Constipation, nausea, vomiting and some degree of fever (101° or 102° F.) are customary in a mild attack, which will probably pass off in a few days. In severer cases all the symptoms are much more pronounced. There may be an initial rigor, a temperature of 104° F., acute pain, marked prostration, vomiting, and complete lack of appetite. The illness will either be amenable to treatment, or go on to abscess and suppuration. If the abscess break into the cavity of the abdomen collapse will ensue and recovery be extremely problematical. In mild attacks the patient must keep in bed and hot opiate poultices and fomentations be applied to the belly, opium (if need be) being hypodermically injected to allay the pain. Only liquid nourishment must be given, but it should be hot and in small quantities. Milk and ice are not suitable, and no solids must be allowed until the fever has gone and the general state been greatly improved. If it be desirable to move the bowels, action should be obtained by means of an enema and not by aperients. In severe cases prompt operation is far the best treatment. The removal of the appendix will, of course, put an end to all recurrence of the mischief. Some suffer periodically from appendicitis, others chronically. In the former, or relapsing type they enjoy normal health between attacks ; in the latter they are always ailing. Those who are liable to this trouble should live carefully, masticate their food thoroughly, eat in leisurely fashion, avoid all articles of diet that are in the least likely to prove difficult of digestion and be studious to keep their bowels open.

APPETITE, FAILURE OF

For loss of appetite, accompanied by constipation of the bowels, pain in the stomach, especially a feeling of fulness at the pit of the stomach after eating, with broken and unrefreshing sleep, regular outdoor exercise, the avoidance of tea, cake, pastry, and alcohol, and the regulation of the bowels by means of aloes pills are called for.

ARACHNOID MEMBRANE

a fine, semi-transparent web, which is spread over the entire surface of the brain, bearing some resemblance to a spider's web, for which reason it has obtained its peculiar distinctive name (Greek, **arachne,** "a spider"; the termination *oid* denoting likeness or similarity.)

ARM BONE

See HUMERUS.

ARM, FRACTURE OF THE

In the case of a broken arm, the sound limb should first be withdrawn from its coat-sleeve, the other sleeve being gently drawn off the broken limb, unless it is found that the attempt causes the patient great pain; in this case it should be at once opened up the seam. The shirt sleeve should always be opened, and in some cases it is desirable to open the side-seam of the shirt as well, both for the convenience of the surgeon and in order to facilitate the changing of the shirt when necessary. The broken limb should not itself be moved.

ARNICA LOTION

See LOTIONS.

ARSENIC, DETECTION OF

The means of detecting arsenic are various, but the following are most easy of application :—Throw some of the suspected matter in a dry state upon red-hot iron, and if arsenic be present you will perceive an odour strongly resembling that of garlic. Draw a broad stroke upon white paper with the suspected matter in a fluid state, then draw a stick of lunar caustic over the moistened paper several times, and, if arsenic be present, the streak will assume a rough, curdy and yellow appearance, which after a time will become brown.

ARSENIC, SYMPTOMS OF POISONING BY

The symptoms produced by arsenic taken into the stomach are constriction of the throat, burning pain in the stomach and bowels, vomiting, and frequently purging, both evacuations being often bloody. The breathing also becomes difficult, the pulse small, hard, and quick, and the thirst incessant, the extremities are cold, and death is usually preceded by convulsions. Persons recovering from an overdose of arsenic are sometimes left paralytic, and often with chronic inflammation of stomach and bowels.

ARSENIC, TREATMENT FOR POISONING BY

The treatment consists in giving large quantities of sugar and water or linseed tea, with a view of promoting the vomiting, which is already present and of sheathing the coats of the stomach; and then in freely and frequently washing out the stomach with the same mucilaginous fluids, by means of the stomach pump. Then mix one and a half ounces of Liquor Ferri. Perchlor. into a wineglassful of water and add it to solution of half an ounce of washing soda in half a tumblerful of water. Repeat this draught if necessary. If the violent symptoms are subdued — broth and other light diet may be given. The pains in the stomach and bowels which remain call for the free application of leeches, and other treatment applicable to inflammation of these parts.

ARTERIES

(Greek, **arte′ria**; from **aër,** "air," **tereo,** "I keep").

The tissues and different organs of the body are constantly in need of blood, and there is a special apparatus by means of which it is supplied to them. In the chest there is a powerful forcing-pump, called the heart, from which pipes proceed to all parts of the body, and there is another set of pipes which bring back the blood from all parts of the body to the heart again. The pipes which take the blood from the heart are known as arteries, and those which bring it back are called veins. The arteries are so-called because they were supposed, a long time ago, to contain nothing but air. Their structure is very wonderful. Each artery has three coats. They are not made throughout of some one substance, as a water-pipe is, but of different materials woven together. The external coat is very elastic ; another, the middle one, contractile. The thin or internal coat of the artery is also an elastic coat and lies within the muscular or middle coat. Its inner surface is lined with a layer of beautiful but very small plates, called endothelial cells, which allow the blood to flow over them as smoothly as if they were polished tiles. How, it may be asked, do the arteries end, and what becomes of them ? It is only by the aid of the microscope that this question can be answered. The main arterial tubes, or pipes, which convey blood from the heart, divide and continue to give off branches, or smaller pipes, until they become so small that we can hardly see them. All parts of the body, except the cuticle of the skin, the hair, the teeth, and the cartilages which cover the ends of bones, are pierced through and through by small arteries which are characterized by possessing the three coats just described. These minute arteries terminate in still smaller pipes or tubes, called capillaries, hair-like tubes, so numerous that it is impossible to prick oneself with a needle without rupturing some of them.

ASCITES

See Dropsy.

ASIATIC CHOLERA

(Greek, **chol'e,** " bile ").

Cholera, as known to us, is of two kinds—what is recognised as British cholera, a disease bad enough, but not particularly fatal ; and that terribly fatal disorder, Asiatic, malignant, or epidemic cholera. This last disease seems to have been known in India for centuries, and to have its natural home or headquarters in the Delta of the Ganges. In 1817, the disease first attacked Europeans in India, and ravaged Lord Hastings' army ; but it was not till 1831 that it reached England. In this country the disease has almost invariably prevailed in its worst form in poor, crowded dwellings, among those whose food supply was bad, whose hygienic conditions were otherwise unfavourable, but especially among those who had a tainted supply of water. He who would avoid cholera, during a cholera season, ought to live by rule and method. First, take care that the water-closet is in good order, and that every precaution is observed in cleansing and disinfecting it—carbolic acid powder, or the diluted acid itself, is best for the purpose ; see that the house is clean, sweet, and airy ; let no foul and decaying matter of whatever kind remain on the premises ; be sure that the water supply is pure ; let no stale meat or vegetables, no sausages, game, or substances likely to create digestive disturbances be used for the time being ; especially avoid unripe fruits, prolonged abstinence from food, excessive fatigue. The astringents to be used should not be powerful ; chalk mixture, sulphuric acid, lemonade, or these with a little opium added, are best. *No diarrhœa in cholera time is to be neglected.*

ASIATIC CHOLERA, SYMPTOMS OF

The following are the symptoms of Asiatic cholera :—After diarrhœa or sometimes no premonitory symptoms having occurred, sudden vomiting of the contents of the stomach without nausea, and sudden purging without pain ; and vomiting and purging frequently recurring, the liquid discharged being like rice-water or gruel. Accompanying this are spasms of the muscles of the extremities and belly. In a short time, from one to three or four hours, collapse supervenes ; urine is not secreted ; the pulse is extinguished ; the eyes are sunk ; the eyelids are surrounded by a dark circle ; the voice is hardly audible ; the tongue is cold ; the skin is cold and passively shrunk, with a dirty look, or livid and bluish, particularly on the extremities ; cramps of the limbs are constant; the vomiting and purging cease, and life ends. It is probable that, in its worst forms, the appalling antithesis which Magendie used in describing Asiatic cholera conveys no exaggeration : " It begins," said he, " where other diseases end—in death."

ASIATIC CHOLERA, TREATMENT OF

It is quite useless to give medicines internally ; they only accumulate there, for they are not absorbed. The only thing is to try to keep up the heat in every way which will not disturb or fatigue the patient—this is material. The patient is consumed with thirst, and there is no reason under the sun for refusing him drink, if of a wholesome kind. Should reaction occur, he must be kept quiet. If his head trouble him and his face is flushed, apply cold water to it. If there is much sickness, let him have a little ice or ice-water. If his lungs get gorged, warm poultices or turpentine stupes will be best. But the great anxiety is the kidneys. If they do not act, warmth must be tried, perhaps as a warm bath ; but this is a delicate matter, and requires caution. If they are acting well, and a patient requires a stimulant, let him have some sal volatile. The food given is of special importance ; broths, soups, and jellies may be administered, but certainly not meat. Small quantities of food at a time may be given, and repeated as frequently as necessary.

ASTHMA

(Greek, **asth'ma,** " short-drawn breath ; " from **ao,** " I blow," or " breathe hard ").

Asthma is usually a disease of middle age, although it not infrequently appears in early manhood or even in childhood. During the intervals of attack the patient may be tolerably well, but may be said to be a valetudinarian. The disease may attack the individual in apparently the most healthy situations, and leave him alone in smoky, apparently unhealthy, quarters. As a rule, London suits asthmatics, but not, by any means, all. Not unfrequently asthma is hereditary, and commonly sets in about middle life. Asthma seldom destroys life, however bad the patient may seem in the fit. Many who are subjects of asthma live a good long life, the reason probably being that they are forced to take care of themselves. Generally, however, the disease induces other conditions, especially of heart and lung, which, indirectly, prove fatal.

ASTHMA, SYMPTOMS OF

Asthma, whether connected with malformation or not, is a hurried, oppressed, and noisy state of the breathing, coming on in paroxysms, and leaving the patient quite well in the intervals in many cases; whilst in others there may be observed at all times an imperfect state of respiration, namely, a little thickness or wheezing, and a more confined dilatation of the chest than is natural in inspiration. An asthmatic attack, or a fit of asthma as it is called, usually, however, consists of two, or three, or more aggravated paroxysms of difficult breathing, coming on for as many successive nights, with alleviation during the daytime, but not a perfect freedom of respiration till the expiration of three or four days, after which the patient may remain free from another attack for many weeks or months. A peculiar state of the atmosphere is a frequent exciting cause of an asthmatic attack; damp foggy weather will induce it in some, a north-east wind in others; some asthmatics are liable to an attack when spending only a single night in London, or other large towns, whilst some few are more exempt from attacks in these circumstances than when in the country. Particular odours will excite a paroxysm in some, and exposure to the dust in certain industries, as feather-dressers, file-makers, and others, will bring it on in most persons who are predisposed to it. A single indigestible meal, and particularly a hearty supper, is another frequent exciting cause; and such as are habitually inattentive to the quality and quantity of what they eat and drink, have the most frequent and most severe attacks. But the most common exciting causes, after all, are just such as would induce in other persons an ordinary cold, as exposure to cold or damp in any form. The breathing, when asthma comes on, is so distressing as to make the patient sit up in his bed, change his posture again and again, release himself from bed-clothes, or anything that is tight across his chest, withdraw the curtains, or rise and walk about the room and seek an open window, or perhaps the open air. The wheezing is attended with successive outbursts of coughing, and at length the expectoration of some viscid phlegm greatly relieves the patient; he breathes tolerably easily for a while, and after a little more coughing and expectoration the paroxysm ends.

ASTHMA, TREATMENT OF

The grand rule to be observed in asthma is to avoid everything likely to set up the attack, particularly diet that the sufferer knows from experience to be provocative. If the attack has been brought on by an injudicious meal, let the stomach be emptied. During the paroxysm, a few whiffs from a pipe of tobacco or stramonium will frequently act as a charm, whilst in other cases strong coffee acts well. In the interval the health of the patient should be carefully attended to, iodide of potassium and arsenic being among the most approved remedies to be then given, of course under medical supervision. In the long intervals between the paroxysms a tonic plan has been recommended, as small doses of steel and bark, or a course of chalybeate waters ; and by others much stress is laid upon the continued use of small doses of ipecacuanha in vinegar ; but this part of the treatment must be left to the judgment of the medical practitioner. Any great change in the habits and mode of life, as well as in the locality of the patient's residence, has been found to lessen, if not to obliterate the disease ; and we should always recommend persons of sedentary employment to adopt, if possible, a more active mode of life. Where the patient can make a change of residence, too, we would advise as great a contrast as possible ; thus he who has hitherto lived in a plain or low-lying land should emigrate to high country, and vice versa ; the countryman should seek the city and the citizen the country ; and a further change of clime by travelling abroad may be reasonably tried as an experiment, where it can be easily effected.

ASTIGMATISM

(Greek, **a**, "not," **stig'ma**, "mark" or "spot").

This is a condition of the eye in which, for want of uniformity in the curvature of the cornea, different meridians have a different focus. Astigmatic persons, in reading, require different degrees of focussing for the horizontal and the vertical lines of the letters, and the distress that results from this continued and irregular strain of the muscle of accommodation may be readily understood. They usually attribute their defective vision to short sight, but are disappointed in their efforts to correct it by short-sight glasses. The surfaces of these glasses are spherical, and if they correct one meridian of an astigmatic eye, they cannot correct the other, but may make it worse.

ASTIGMATISM, CORRECTION OF

What is needed, in simple astigmatism, is a glass that will correct one meridian without affecting the other ; and in compound or mixed astigmatism, a glass with two curved surfaces, one adapted to each meridian. Such a glass is found in the section of a cylinder, instead of the section of a sphere. In such a glass rays of light passing through its long axis meet with no curve, and are, therefore, not refracted ; while in the direction of right angles to this axis it is strongly convex. This glass is cut into the usual oval form, and is set in the spectacle-frame with its axis corresponding to the direction of the correct curvature of the cornea. In this way we are able to place the proper convex or concave lens before one meridian of the cornea, and, at the same time, only a plain glass before the opposite meridian ; or, if necessary, to correct each meridian separately by the appropriate curvature on each side of the glass.

ASTRINGENT POWDER

See POWDERS.

ATHLETIC TRAINING, DIET IN

In athletic training the object is to reduce the fat, increase the size and hardness of the muscles and the power of endurance. Trainers have experimented with a variety of systems of diet in order to see what is best adapted to co-operate with severe muscular exercise and regular habits to secure their end. Great divergence of opinion exists as to the best fare for athletes of all kinds during training. In many cases comparatively little change should be made in the ordinary diet. As a well-known athlete, Mr. C. B. Fry, has pointed out, any one whose diet is simple, wholesome and temperate does not need to change it appreciably for training, for there is nothing mysterious or abstruse about training diet: ordinary, simple, homely food is all that is required, and cannot be improved upon in any material degree. It is, however, obvious that if a man is in the habit of eating and drinking luxuriously, he must alter his habitual diet if he wishes to succeed in athletics: he must make a change in favour of wholesome simplicity, regularity and temperance. In essentials there is no difference between the best diet for health and the best diet for training. Owing to the increased amount of exercise taken during training an increased amount of nutriment will probably be required to make good the waste of muscular tissue, but it should be borne in mind that the increase will, in most cases, be very trivial. The old superstition among trainers that athletes require large quantities of meat is entirely unjustified by experience. Another old superstition among trainers was that water should only be taken in very limited quantities. This also has been shown to be without any foundation in fact.

ATMOSPHERIC CONDITIONS, EFFECT OF, ON THE HEALTH

The air is not only the means at times of communicating poisons, but its various conditions as to temperature, dryness, weight, etc., may prove the immediate cause of disease. As regards the temperature of the air, it is of great importance whether the air is in motion or at rest. Air which is only a few degrees colder than the surface of the body, but which passes rapidly over it, is found to have a much greater cooling effect on the system than motionless air of a much lower temperature. In cold climates—especially when the cold is damp and depressing—we are more likely to encounter diseases of the lungs and air-passages; whilst fever is to be looked for in warm climates. The latter, however, often arises in a great measure from the heat-promoting vegetable putrefaction, and consequently malaria, and this is more particularly the case when the heat is accompanied by moisture. The action of moist air on the body is easily understood. When the air is at the same time both hot and moist, the large blood-vessels are stimulated to increased action by the heat, which also relaxes the pores of the skin, and in this way perspiration is promoted. Since the air, however, is already loaded with moisture, it refuses to take up the moisture from the body, and, as a natural consequence, we have a turgid condition of the vessels and a sensation of heaviness and weight. This explains why it is that, in what is known as "muggy weather"—although the atmosphere is really lighter than at other times—we ordinarily complain of heaviness and oppression. During cold damp weather, on the other hand, the perspiration is checked by the cold, and the air makes no demand for the moisture. In dry cold air we experience just the opposite effect to that of moist hot weather. The cold has a tendency to check evaporation from the skin, whilst the dry air demands moisture. As a natural consequence people feel cold and starved, as we should expect, from the fact that a demand is made upon the body, whilst at the same time the ability to supply that demand is checked. In moist cold weather a balance is maintained between the absence of demand by the air and the check from the cold on the supply from the body. The weight of the air has a marked effect on the body. The increased pressure may be felt by anybody who descends in a diving-bell, while those who climb lofty mountains and ascend in balloons often suffer from the diminished weight of the air, the consequent lessened support to all the blood-vessels and other parts producing hæmorrhage in those who are unaccustomed to such situations. The diseases caused by climate cannot possibly be avoided by the mass of individuals. It may be laid down as a general rule that if we live in low marshy districts we must expect agues and low fever ; and that if we reside in the unoxidized air of towns we must look for a comparatively feeble state of health.

AUDITORY CANAL

The auditory canal may be said to be a continuation inwards of the trumpet of which the auricle, or outer ear, is the broad and flaring mouth. It is closed hermetically at its inner end by the drum-head, or membrana tympani. The skin of the auditory canal, besides the usual features of the skin, namely, sebaceous, perspiratory, and hair glands, contains at its outer part, around its entire calibre, the ceruminous, or ear-wax glands. These are between one and two thousand in number, and resemble in their structure the sweat glands ; they are indeed what the anatomist calls modified sweat glands. Their function is to secrete the wax of the ear, with which all are familiar. This substance is of the highest importance to the comfort and health of the auditory canal. So long as the outer end of the canal wall is smeared with this wax, the skin is free from itching and the ear is comfortable. Its peculiarly glutinous and bitter nature is a protection against insects, and it also prevents the growth of fungi, or mould, in the canal.

AUDITORY CANAL, DISEASES OF THE

No bead, button, pea, grain of wheat or barley, or, indeed, any similar small smooth object which a child can put into its ear will do any harm, if let alone by all save one entirely conversant with the structure of the ear, and properly supplied with instruments for examination and treatment. If a child, therefore, has any such foreign body in its ear, it is a matter of certainty that such object has not gone beyond the reach of surgical skill. The harm in such cases usually arises from the unskilful means resorted to in haste and consternation for its removal. It should be let alone until it can be properly extracted. It can do no harm at the outset ; it cannot reach the more delicate parts of the aural apparatus unless it be pushed forcibly inwards ; but a careless grappling for it may have this very effect, lacerate the auditory canal, and perforate the drumhead. Of course, such things as beans and peas may do harm, and should be removed in due course by the proper person ; but they had better remain in the ear for ever than be sought after by the ignorant and unskilled manipulator. The simplest, softest, most agreeable, and usually the most successful way to try to remove a foreign body from the ear is gently to get it out by syringing. This method is applicable especially to insoluble and inanimate bodies.

AURAL VERTIGO, TREATMENT OF

Both physician and patient should be careful not to ascribe to biliousness the symptoms arising from aural vertigo. Yet this mistake is constantly made and consequently the wrong treatment followed. It may be said that a treatment beneficial in an attack of so-called "biliousness," which in some respects an attack of aural vertigo closely resembles, is absolutely injurious in the latter disease. If aural vertigo be due to a foreign body in the external ear, removal of the offending object will cure the vertiginous and any other symptoms excited by the irritation in the outer ear.

AURICLE

(1) The name given to the muscular sacs or cavities at the base of the heart, one on either side, and so called from the fancied resemblance of these cavities to the external ear of some quadrupeds (*see* HEART). (2) The auricle, or ear of common language, is a shell of cartilage, covered with skin, closely fitting every groove and ridge of the underlying cartilaginous frame, excepting at its lowest pendent part. Here the skin is reflected over a cushion of delicate fat, the lobate flat part usually pierced for earrings.

AURICLE, DISEASES OF THE

The auricle, or outer ear, is liable to frost-bites in very cold countries. Although this is not dangerous either to the health of the individual or to his hearing, it is painful in the end, and may be disfiguring. When the auricle is frost-bitten, it becomes very white and dead-looking. It is also very brittle and insensible. Great care must be taken not to break it, and also not to heat it too quickly. Gentle handling is therefore necessary, and heat must not be applied at all at first. A gentle chafing or rubbing with snow or ice will be the best way of restoring slowly the circulation of the blood to the frost-bitten part. Apply cold water until the skin of the frozen ear begins to have feeling in it once more ; then the organ will be safe.

AURICLE, IMPERFECT DEVELOPMENT OF

Sometimes babies are born without auricles ; or they may be born with several auricles, some of which may be unnaturally placed, as, for example, low down on the neck. Again, the auricle may be only partially formed ; yet with all these defects the hearing may be good. The hearing is rarely affected in such cases unless the defect of the auricle is found to extend to the auditory canal or deeper parts of the ear.

BACILLUS

(Latin, **bacil'lum,** "a little stick," diminutive of **bac'ulum,** "a stick")

a slender rod-like organism, perceptible only under a powerful microscope, and so called on account of its shape. It is usually classed as one of the divisions of the group of Bacteria, which are micro-organisms constituting the lowest division of those forms of vegetable life called fungi. The epoch-making researches of Pasteur demonstrated the all-important part they played in the processes of fermentation and putrefaction, and then followed the brilliant generalization, afterwards experimentally established, of the germ theory of disease, according to which diseases are occasioned by bacilli, which are received into the human body by inoculation, inhalation, infection, contagion, and possibly other modes akin to these. Thus nearly every grave disorder has its different bacillus, which, by cultivation, is recognizable. Accordingly, the cholera bacillus has one form, the tubercle bacillus, or bacillus that causes tuberculosis, or consumption, another. The bacillus of anthrax produces wool-sorter's disease, that of tetanus lockjaw, that of leprosy leprosy, that of diphtheria diphtheria and so with other disorders. Hence we see the value of the antiseptics employed to prevent the entrance of germs.

BACK, SPRAINS OF THE

Sprains of the back are usually caused by a fall from a height, or from a weight coming down suddenly on the neck or shoulders. The structures suffering are the fibrous ones generally. There is considerable swelling in the loins soon after the accident, and great pain on any attempt at motion. The inconvenience arising from a severe sprain in the back lasts a long time ; so that a person may be confined to his bed or sofa for a fortnight, and it may be many weeks or even months before he is completely free from pain. There may be some transient effect produced on the kidneys, and blood may be found mixed with the urine for a few days ; but rarely any bad effects ensue.

BACK, SPRAINS OF THE, TREATMENT OF

The treatment of affections of this kind consists in giving a mercurial purgative, followed by Dover's powder, poppy fomentation to the back, made with an old soft blanket covered with thin oil-cloth and with dry blankets ; or the part may be covered with thick compresses of cotton-wool, soaked in a solution of tincture of arnica, in the proportion of an ounce to a pint, and laying gutta-percha tissue or oil-skin over it. When the person can sit up, some stimulating liniment, or compound tincture of iodine, may be used, and a warm plaster applied to the loin.

BALDNESS

Alopecia or baldness is very frequently, though not always, the result of seborrhœa, or acne sebacea, a disease of the sebaceous glands or sweat glands (*see* SEBORRHŒA). Baldness, temporary or otherwise, resulting from illness, or bodily or mental ailments, or old age, is dealt with in the next article.

BALDNESS AFTER FEVERS

After fevers or exceedingly acute diseases the hair, which during the period of the disease has remained stationary in its growth, generally falls off and a new growth begins, which at first very frequently differs in its characters from the hair before illness. Then, too, it usually grows faster for a time. Usually a good growth of strong hair may be taken as a sign of a vigorous constitution. A thin crop of sandy, that is, imperfectly-coloured hair, commonly marks one in whom the original force of bodily growth has been deficient. Thinning of the hair may take place from a variety of causes, and very often precedes absolute baldness (*alopecia*). Sometimes there is total loss of hair over a limited surface as the result of parasitic disease.

BALDNESS, ENTIRE

Complete loss of hair may begin early in life, and it may begin in one spot and gradually extend, or begin as thinning only. This has been assigned to various causes, which practically resolve themselves into this that, sooner or later, a time comes when the growth of hair ceases and the hair already in existence gradually falls out. The "thinning of the thatch," as it has been sentimentally called, is inevitable with the flight of time, though a sufficient number of instances of magnificent heads of hair in persons of advanced years can readily be adduced to prove that nothing like a hard and fast rule on the subject can be established. Grief, great mental anxiety or long-continued excessive brain-work, are the most frequent causes of premature baldness. When the hair thins generally all over the head, the scalp is commonly seen to be dry and scurfy. Frequently, too, in these cases the hair itself alters, splits up at the end, tends to break off, and becomes dry and unruly. Both these conditions, though due to local causes, are dependent on some alteration in the system, to which, and not to the hair, the attention must be directed. This is quite different from parasitic disease which gives rise to baldness and in which the fungus causing the destruction of the hair must be dealt with.

BALDNESS OF OLD PEOPLE

This is generally preceded by alteration in the colour of the hair, which becomes grey. It generally falls first from the very top of the head, and thence gradually spreads to the sides. Baldness in young people arising from parasitic disease is not preceded by alteration in colour. Generally, some local irritation indicates the spot where the hair will first begin to be shed. This is usually on the side of the head, and frequently the hair is broken and stubbly round the bald spot. Baldness almost invariably follows syphilis during the period of secondary eruption. This baldness is sometimes sudden and very complete, the hair coming out literally by handfuls. Baldness accompanies certain diseases, but is not permanent as a rule. Of course, when the head is shaved for the purpose of treatment, the bare scalp is strictly not baldness at all.

BALDNESS, TREATMENT OF

When hair falls off through disturbance of the constitution, it is mostly the custom to give arsenic and frequently, when there is much nervous debility, arsenic does well, not so much on account of its fancied action on the skin, as because it is a really good, serviceable tonic. Iron, quinine, and strychnine are generally beneficial. If the hair follicles are totally wasted, local measures will be of little or no avail, but if they are in a condition to respond to stimulation, such applications may restore a goodly head of hair. If downy hairs are visible, these may usually be made to grow by stimulation ; even if they are entirely absent, good may be done if the scalp look at all natural. If white, shiny, and with little fat below the skin, there is not much hope. If, too, the scalp be swollen or thickened, some local application will be required. The best for this last is tincture of iodine, but it must be used with caution.

BALDNESS, TREATMENT OF, BY STIMULANTS

When there is a chance of getting the hair to grow again, stimulants may be used. If there are downy hairs, let the head be shaved and a blister lightly applied, for, of all stimulants to the growth of hair, Spanish flies (cantharides) is the best. It must be used repeatedly, if necessary. When the hair is thinned only, the first thing is to restore the scalp to a healthy condition. The scurf should be got rid of by bathing with tepid water night and morning, and by constant application of glycerine and lime-water in the interval. No fats or oils are to be used at this period, as they are apt to go rancid and so irritate the irritated scalp still more, but glycerine and lime-water, or fresh olive oil and lime-water, may be employed. A very good compound for gently acting upon the hair follicles is to be obtained by adding a few drops of tincture of cantharides to toilet vinegar, and gently damping the scalp after it has been well washed with the mixture. In short, the principles above laid down are those which must guide any individual in dealing with the hairy scalp. Each may apply them for himself. For nutrition of the hair-bulbs, which may be improved by stimulant lotions which redden the scalp and bring a greater amount of blood to the parts affected, Sir Malcolm Morris found the following prescription of use—

Borate of soda	ʒx
Salicylic acid	ʒij
Tincture of cantharides . .	℥vj
Bay rum	ʒxxv
Rose-water	℥x

Boiling water enough to make a pint and a half.

The borax and salicylic acid should first be dissolved in the boiling water; the bay rum and other ingredients should then be added and the solution filtered before use.

BANDAGE, MANY-TAILED

This is a long strip crossed by short ones, fastened at right angles. It is useful as applied to a limb, because, without moving the limb in the least, it can be undone and the injury examined.

BANDAGE, PLASTER OF PARIS

When a bandage of this kind is necessary, prepare for the surgeon strips of very thin soft muslin of the required width. The cloth sold under the name of "cheese wraps" is best, being an unbleached muslin with very wide meshes and entirely without sizing: sizing interferes with the setting of the plaster. Lay the near end of the strips in a flat tray, in which there is a pint or more of plaster of Paris, of the best quality and perfectly fresh; roll up the bandage in the plaster, rubbing the plaster in with a spoon as you draw the strip through it towards you; or let a second person put on the plaster with a dredging box as you roll the bandage, the point being to fill the whole length and breadth of the bandage with the plaster. When the surgeon is ready to apply it, dip the rolls for a moment in water, until they have taken up all that they can; then squeeze them slightly and they will be ready. Hot water will set the plaster more rapidly than cold, and hot salt water more rapidly than either.

BANDAGE, PLASTER OF PARIS: ANOTHER WAY

Mix plaster of Paris with water

to the thickness of an ordinary poultice and have ready folds of sheet-lint or old napkins, which will be dipped in the mixture and applied by the surgeon with a roller bandage.

BANDAGE, STARCH

When this is to be applied, have ready for the surgeon rolls of sheet-wadding, a basinful of thin boiled starch and roller bandages of the proper width. The surgeon will supply such pasteboard as he may require to be dipped in the starch. If necessary to dry the bandage quickly, have sand-bags heated in the oven and lay them near the bandaged limb. A piece of blanket or a heavy, long, soft stocking can be used for a leg bandage, and must be split through its whole length on the upper side, soaked in starch and applied with a roller bandage, as pasteboard.

BANDAGE, T

The ordinary roller-bandage is in the form of a long narrow strip, but bandages made in the shape of the letter T are often needed and can be applied to various parts of the body where a straight strip is unsuitable.

BANDAGING, RULES FOR

There are some few plain rules which ought to be attended to in the application even of the simplest bandage which can be used, as the manner in which it is bound round the limb makes all the difference in the comfort of the patient. It will be found most convenient to hold the roller on the inner side of the limb (if it be a limb) to be bandaged, so that in the case of the right side being operated upon, the bandage is held in the operator's right hand and vice versa, and for expedition in application the portion which is still unwound should be underneath that which is being wound round the limb ; in fact, the bandage should form a sort of continuous figure of eight. At starting, a length rather more than the circumference of the limb should be unwound, and cast around the part, and the hand not employed in holding the bandage made to tuck the free end under the first complete turn. If this slight manœuvre be dexterously accomplished, the bandage will never slip, unless purposely unwound. It is then lightly but firmly wound round the limb by a series of turns as far as required. Now it is evident that, in the case of a well-shaped muscular limb, winding cannot be made evenly, as it will not lie flatly ; the simple device of reversing is then employed : it consists of taking a turn in its application, and bending it upon itself by changing the surface of the roller which is applied to the skin, by making an acute angle or reverse at each turn, and giving it a sharp " twitch " at each. In bandaging the arm or leg, it is best to begin with a few turns round the hand or foot first, whether it be for the retention of splints or dressings. Bandages should always be applied with equal pressure throughout and not too lightly. Bandages, such as the above, may be rendered hard and strong by smearing their successive turns with gum, plaster of Paris, glue, paste, or white of egg, which speedily sets, serving the double purpose of bandage and splints. It is easier to illustrate than to describe the processes of bandaging, and a careful study of the three Plates which we have devoted to the subject will teach the reader more than can be gathered from letter-press. In the first of these Plates it is shown how to roll a bandage, how to bandage a finger, how to apply bandage and splint to a rickety child and how to bandage varicose veins. The second Plate illustrates how to bandage a broken arm, how to provide a ready sling for an injured arm, how to bandage a broken wrist and how to apply bandage and splints to a broken leg. In the third Plate we are concerned with dressings of the head, such as those suited for the region of the temple, fracture of the lower jaw and for the head. See also FRACTURES, TREATMENT OF.

BANTING'S DIETARY

The dietary adopted by William Banting (1797–1878), a well-known London undertaker, who had found it advantageous in reducing his tendency to corpulence was, slightly modified, as follows :—

Breakfast (*about* 8.30 *a.m.*). Four or five ounces of beef, mutton, kidneys, boiled fish, bacon, or cold meat (pork or veal excepted), or two eggs (not hard boiled), a large cup of tea or coffee (with neither milk nor sugar), a little biscuit, or an ounce of dried toast, brown bread, or crust off a common household loaf.

Dinner (*about* 1 *p.m.*). Five or six ounces of fish (any sort, except salmon, herrings, or eels), any meat (pork or veal excepted), any vegetable (except potatoes, parsnips, beetroot, turnips, or carrots), an ounce of dry toast, a crust cut from the loaf, fruit out of the pudding (omit the sugar), any kind of game or poultry, and two glasses of dry sherry, or three of good sound claret (no champagne, port, or beer to be taken).

Tea (*about* 5 *p.m.*). Two or three ounces of fruit, a rusk or two, and a cup of tea (without milk or sugar).

Supper (*about* 8.30 *p.m.*). Three or four ounces of fish or meat, and a glass or two of claret.

The sherry or claret at dinner and the claret at supper were a concession to habit. As a matter of fact, it is not necessary to drink at meals at all, because in the absence of liquor the food will not be washed down but be properly masticated. An hour after a meal a drink may be usefully taken, and there is no drink like water, which goes well with food.

BARBER'S ITCH, OR SYCOSIS

(Greek, **sukon,** "a fig," in allusion to the appearance of the sufferer's face).

An affection of the hairy parts of the face, and particularly the chin, the disease sometimes also involving the eyebrows, eyelashes and other parts of the person. It is often due to a foul shaving-brush or razor, whence its popular name. It is caused by microbic infection. Papules form round the hairs and develop into pustules, each pierced by a hair. As the inflammatory process advances the hairs become loose and fall out, a drop or two of pus following each. As the pus dries, brown or yellow crusts form. The disease is contagious, spreading from one follicle of hair to another. The sufferer must be patient, as sycosis may be very obstinate. The treatment consists in removing the crusts with bread-and-water poultices, extracting the hairs over the whole of the affected area (they are all diseased) and applying soothing and antiparasitic remedies. Sir Malcolm Morris recommends oleate of mercury (1 to 2 per cent.), or weak sulphur ointment in mild cases and resorcin ointment (2 to 10 per cent.) in severer. Carbolated vaseline is an excellent antiseptic dressing that can readily be applied. Ointments having a lard base should be avoided, since such substances are breeding-grounds for pus germs. For some time after apparent cure shavers should use a 1 in 1000 bichloride of mercury solution in their lather water, and apply pure lanolin to the face every night.

BARE FEET FOR CHILDREN

On the subject of wearing neither shoes nor stockings in the case of children, a writer in the *Lancet* says : " A question has been raised whether, in England, children might not with advantage be allowed to adopt the practice prevalent in Scotland, Ireland, and many large districts on the Continent and in the British Colonies, of going barefooted. As against the custom of wearing bad shoes that will let in the water and are soaked in wet weather, and stockings which are rarely changed, there can, we think, be no ground to doubt the expediency of abandoning foot-coverings altogether. Nature will be her own shoemaker in the matter of protection, the cuticle being hardened just where a pad is needed and nowhere else, and she will amply provide for due defence against cold by establishing a more abundant supply of blood to the extremities. As a matter of fact, the heat of the body depends on the vital processes carried on within it, and these are amply sufficient to meet every want. Then, again, it is true, as the medical officer has, in the case to which we allude, reported, that if the foot is not encased in a hard frame or box which impedes the action of the muscles and joints, this organ will be capable of better work in walking and jumping, and it will be more fully nourished, in obedience to the law that makes the nutrition of every part and member of the body dependent on exercise for efficiency. To these considerations must be added, that when the extremities are habitually exposed there is less danger of cold-catching than when they are 'protected.' On hygienic grounds, bare feet are certainly admissible, and the fact that foot-coverings are not employed by the inhabitants of regions with climates colder and more variable than the English is evidence that they are not indispensable, or, as we believe, conducive to health in England. Habit and fashion alone enjoin the wearing of shoes, and to those who in early life are accustomed to go without these articles of dress there is not only no hardship, but an immunity from many troubles—chilblains, corns, cramped toes, and tender feet among the number."

BARLEY. *See* DECOCTIONS.

BARLEY WATER

Mix one dessert-spoonful of "Patent" barley with a wine-glassful of cold water into a smooth paste. Pour this into a stewpan containing one quart of boiling water and stir over the fire for five minutes. Flavour with lemon and sugar, allow the mixture to cool, and strain off the sediment. For invalids requiring nutriment, a larger quantity of barley should be used and the straining of sediment omitted, or not.

BARRENNESS, CAUSES OF

The causes of barrenness are various, but the most usual kinds are : (1) from impotency, or imperfection, or abolition of the conceptive power ; (2) from the monthly discharge being either morbidly retained, or secreted with difficulty, or in profusion; (3) from personal aversion, or want of appetency. The first kind may be either atonic or organic—that is, proceeding from direct imbecility or want of tone, or produced by some structural hindrance or defect, whether natural or accidental.

BARRENNESS, TREATMENT OF

(1) When the barrenness proceeds from imbecility or want of tone, the proper remedies are, local and general tonics, and stimulants, especially cold bathing, preparations of iron with bitters, electricity, combined with change of air and scene. Abstinence, for a time, is likewise very advisable. If this description be produced by some hindrance or defect in the structure of the parts concerned, the most efficacious course consists of alteratives, and an occasional tepid bath at about 95°F., the bowels being kept regular with a mild aperient pill.

(2) When the barrenness arises from irregular menstruation, the cure must depend upon a removal of the particular kind of morbid affection that operates at the time, and lays a foundation for the condition.

(3) Female sterility from personal aversion is a complaint irremediable by the healing art, and can only be attacked by a kind, assiduous, and very affectionate attention, which will rarely fail of its object.

When married couples, possessing a full habit of body, or great constitutional vigour, are destitute of children, the ordinary effects of a spare diet, united with daily active exercise, are worthy of their attention. In such cases, a well-known physician was in the habit of putting both the man and woman on a diet of milk and vegetables, and asserted that he had known this succeed in several instances. The effects of a spare and rather low diet upon the procreative powers are certainly remarkable and within the sphere of every man's observation; for the married poor almost everywhere abound with children, while the rich are often childless, or at any rate large families among them are comparatively rare.

BARYTES

A substance called barytes, or baryta, has been much used to poison rats. It is a white ponderous earth, usually sold in powder. It is very poisonous, and being frequently called for may become the source of poisoning by accident or otherwise. The symptoms produced by taking barytes are—a sense of burning in the stomach, vomiting, griping, purging, paralysis, convulsions, and death.

BARYTES, ANTIDOTE TO

The antidote in cases of poisoning by barytes is either Epsom or Glauber's salt, of which somewhat more than the quantity of barytes taken will by chemical decomposition and re-combination produce an insoluble and inert salt, which will pass off by the bowels. Should the poison, however, have been taken long enough to produce pain and sickness, besides giving a full dose of salts dissolved in water, mild mucilaginous drinks, as milk, barley-water, etc., should be ordered; and the stomach pump should be employed without delay. In addition to this, leeches should also be applied to the stomach, and every other means for subduing inflammation be used.

BATH, COLD

Cold baths are invaluable aids in promoting and preserving health, if properly used in suitable cases, but may become dangerous agents, causing even fatal results, if employed by the wrong persons at improper times, or with excessive frequency. Very cold plunge baths—that is, those below 50° F. in temperature—should only be indulged in by the most robust, and even with them it is doubtful whether the shock to the system is not more injurious than the reaction is beneficial. In every instance the test for the advantage of a cold bath is very simple and easily understood, being merely the occurrence or non-occurrence of this reaction or "glow," as soon as the skin is dried ; when such a glow is promptly felt, the bath does good, and may be repeated at the same or a slightly lower temperature ; but if such reaction takes place slowly or not at all, the person feeling chilly, and the lips, the skin beneath the nails, and indeed that of the external surface generally, continuing for ten or twenty minutes bluish instead of pink, the bath does harm. A few remarks may be made upon the impropriety of plunging into the cold bath after the body has been greatly heated by exercise. It may be safely asserted that in the earlier stages of exercise, before profuse perspiration has dissipated the heat, and fatigue debilitated the living power, the cold bath is generally safe and useful ; on the other hand, nothing is more dangerous than for a person to go into the cold bath after exercise has produced great perspiration, and terminated in languor and fatigue. The reason of this is obvious. In the first case, the exercise is short of fatigue, being just such as produces an increased action of the vascular system, with some increase of heat, and thus secures a force of reaction under the shock which otherwise might not always take place : in the second instance, where the person waits till he is perfectly cooled, and some degree of languor follows as a necessary consequence, the heat is not only sinking rapidly, but the system parts more easily with the portion that remains, and on plunging into cold water a sudden chilliness is felt which is alarming and extremely dangerous. So that were a person compelled to go into cold water after very active exercise, he had far better go in when hot, than when cooling after having been heated.

BATH, COLD, ACTION OF

This bath is employed to increase the vigour of the constitution, and is used with a view to causing reaction. The best time to take the cold bath is in the morning ; but as many invalids are unable to produce the necessary amount of reaction at this time, it had better be deferred till some time after breakfast, when the body is in a condition more fitted to stand the shock. The patient ought not to remain in the bath more than a few moments, as reaction may be prevented and danger result in consequence. The temperate bath causes less shock than the cold, and consequently is followed by less reaction. It is better suited for invalids and children than the cold.

BATH, COOL SPONGE

Cool (not ice-cold) sponge baths are valuable tonics, and may often be advantageously used in delicate states of health. The shock to the system is much less than with the plunge bath, and the consequent reaction less intense ; but the rule for judging of their beneficial effect is precisely the same. It need not be supposed that elaborate bathing arrangements are necessary. The child or man needs simply a basin of water, a rough wash cloth, a rubber cloth to stand on, soap and towels. Let him then take off all his clothes, and briskly rub himself from head to foot with soap and water, and then with the dry towel. The back can always be reached with a small wet towel thrown over the shoulders and rubbed to and fro. The friction must be vigorous and not too hurried.

BATH, DAILY

The daily bath is desirable for all when it can be had without inconvenience. It may be used advantageously at night as a promoter of sleep. During hot weather the rapid sponging of the whole body with cold water, just before going to bed, is an excellent soporific ; and in winter the tepid bath will be hardly less effectual. Even to wash the hands and feet just before going to bed leaves a feeling of satisfaction and comfort well worth the trouble.

BATH, FOOT

When the face is full and flushed and the head feels congested and a derivative action is wished to be brought about, the foot bath is generally had recourse to. It acts by causing an increased flow of blood to a part remote from the seat of injury, or from the part where injury is dreaded. In order that this derivative action may be efficient, the water should be as hot as can be borne by the patient or, at any rate, sufficiently so to redden the skin. The quantity of water should come up to the patient's knees when the feet are in the bath. A zinc pail answers very well for the purpose. Frequently mustard is added to the water to increase its derivative effects. Three or four tablespoonfuls of mustard are sufficient for each bath. The feet must be thoroughly dried on coming out of the bath and a warm pair of stockings immediately put on ; and after the patient has been placed in bed, hot bottles should be applied to the feet. This bath is also sometimes made use of in cases of difficulty of breathing. In order to promote perspiration, a blanket should be placed over the patient's leg and encircle the bath as well.

BATH, HIP

When it is wished to act upon the organs contained in the pelvis, the hip bath is made use of. In order that the patient may be able to sit in the bath with comfort, it should be provided with a back. These baths are generally used hot or cold according to the effect to be produced and the quantity of water employed should fill little more than one-third of the bath, as it might otherwise overflow on the patient sitting down. When this bath is made use of for the purpose of relieving pain, the temperature of the water should not exceed 90° F., and the patient may remain in it for half an hour ; but when used to increase the activity of the womb, when the monthly discharge is defective, it should be employed as hot as the patient can bear it ; but the time during which the patient should be in the bath ought not to exceed ten minutes or a quarter of an hour. The best time to employ this bath is in the evening just before the patient retires to rest.

BATH, HOT

This bath should be employed with care, as harm may result from its use. Its action is that of a powerful stimulant, increasing the force and rapidity of the circulation and causing copious perspiration. It should not be used in cases of heart disease, or where there is any tendency to fainting. It is useful in cases of kidney disease and diseases of the liver. The period of immersion had better not exceed a quarter of an hour, lest exhaustion result. Hot baths, by which are meant those of a temperature of from 85° to 105° F., are chiefly used as powerful stimulants. Every parent should remember, however, that a hot bath, causing free perspiration, promoted by wrapping up warm in bed with blankets, will often save children and adults from severe attacks of illness, if promptly resorted to after exposure to cold or wet.

BATH, HOT DOUCHE

The object of this bath is to combine heat and percussion ; and this may be accomplished by pouring the water through a narrow tube, so as to cause it to strike forcibly upon the part ; at the same time keeping up beating by means of some soft material. The douching may go on for about half an hour at a time, after which the patient should be put to bed and perspiration promoted. This bath is very useful in chronic rheumatism, when the joints have become enlarged and painful.

BATH, SHOWER

This bath partakes of the nature of cold affusion, only it is not so severe. It may be employed either cold or tepid, the former acting more powerfully and having a greater stimulating effect than the latter ; but for those who are of a rather delicate habit of body the tepid shower bath will answer best. The best time for taking this kind of bath is immediately on getting out of bed in the morning. Should the patient, however, not be able to stand the shock then, it should be postponed till an hour after breakfast, when the body will be better able to bear the shock and produce that state of reaction on which the utility of the bath depends. Reaction after the employment of the shower bath is greatly accelerated by friction with horsehair or coarse flannel gloves before taking the bath. The friction should be kept up till the body feels comfortably warm.

BATH, SPONGE

In diseases accompanied by fever, in which the skin remains hot and dry to the feel, sponging is made use of ; and as it is sometimes entrusted to those in charge of the sick for its performance, a few words may be added as to the manner in which this is done. Remove the patient from bed and, having undressed him, pass several large sponges rapidly over the body until the whole of it has been sponged, after which the patient is to be dried and placed in bed. The object for which this bath is employed is to reduce the heat of the surface by means of evaporation, to cause the skin to act well and render perspiration more perfect, to reduce the irritability of the nervous system and to promote sleep. This sponging must not be undertaken unless by the advice of the medical attendant. Sponging of the chest and trunk is most valuable in those who have a tendency to asthma or other chest affections, in infants during dentition and in those who are rather delicate. It may be performed while the patient is in bed and brisk friction should be afterwards employed so as to cause a glow upon the surface. When salt and water or vinegar and water are used instead, the friction need not be had recourse to, as we wish merely to remove the water, which can be accomplished by soaking it up with a soft towel. The proportion of either salt or vinegar to be employed should be about four tablespoonfuls to every pint of water. These spongings should be used just before the patient leaves bed in the morning, and may be employed during winter as well as during summer. In conjunction with open-air exercise and proper attention to diet, this proves a valuable remedy.

BATH, SPONGE, IN BED

When a sponge bath is given in bed, the chief things to care for are that the bed be protected with a rubber-cloth and draw sheet ; that the patient's arms are slipped out of his sleeves and that a dry night-shirt is always put on after the bath. Take up as little water as possible, but return the cloth to the basin frequently and change the water three times at least during the bath, having a jug and slop-jar by the bed for the purpose. Everything needed must be at hand before the bath begins. Wash and dry only a part of the body at a time. Dry with soft towels in quick, gentle strokes, enveloping the part in the towel as soon as it is washed, so avoiding exposure.

BATH, TEPID

Tepid baths are used to promote perspiration and increase the action of the skin when the latter is hot and dry. It is necessary when these baths are employed to maintain the temperature of the water uniform throughout and, in order to ensure this, the water should be tested from time to time with the thermometer and hot water added when necessary. The period of immersion varies from a quarter of an hour to half an hour. These baths are of great service in the diseases of children. If the child is too feeble to sit erect, a sheet may be spread from one side of the bath to the other and the child lowered to the necessary depth.

BATH, VAPOUR

The vapour bath is very useful in promoting perspiration and is employed as follows : the patient being seated on a chair, a bucket or jar filled with boiling water is placed at his side and the whole enveloped in a blanket. Friction may be employed, if necessary, while the patient is in the bath. The simplest way of giving a vapour bath is to undress the patient, put a thin flannel or woollen cloth about him, seat him in an arm-chair, stand by his side a pail of boiling water, into which, as it cools, you put bricks made very hot and cover the patient, chair and pail with a large blanket, fastened securely at the neck. The steam will soon produce the perspiration required. The greatest care will be necessary to see that the bed, bed-clothes, towels and night-shirt are made hot before the patient uses any of them after the bath. Hot-air baths may be given in the same way with a spirit-lamp or gas-stove and no water. Guard against fire.

BATH, WARM

For purposes of cleanliness, the baths *par excellence* are those of warm water, this term being applied to the ones in which water of a temperature of from 70° to 80° F. is employed. Water of this degree of heat usually gives a sensation of warmth when placed in contact with the human skin and therefore avoids the disadvantages of the shock to the system produced by a cold bath (that is, below 60° F.), and the excessive stimulation resulting from a hot bath, *i.e.*, one of 85° F. and upwards. Soap, or alkali in some form, is necessary to remove the fatty matter poured out by the oil-glands. Many persons are apt to remain too long in a warm bath and care should be taken to avoid this mistake, which has a very debilitating effect if often indulged in. Warm water is essential in early infancy, but its temperature may be gradually diminished with the growing strength and increasing age of the child. Drying of the body of the very young is a process requiring a good deal of attention and, lest the moisture which is sure to remain, even after the greatest care, should irritate the skin, its most tender parts ought to be dusted with powdered starch or rice flour. It is very important to avoid being exposed to cool air after immersion in a warm bath, because mechanical obstruction to the outflow of perspiration from the pores being washed away, the amount of fluid poured out from the skin and consequently the cooling effect of evaporation from the cutaneous surface are greater and the danger of becoming chilled much increased. The condition is accurately expressed by the popular saying that a warm bath "opens the pores," although the exact method by which this opening is accomplished is not generally understood. Hence it follows that the best time for bathing, with those who are in robust health, yet are liable to take cold, is in the evening, when they can go to bed at once and so avoid all exposure for some hours afterwards. Invalids, however, and those who have delicate constitutions, will often find that they can endure the excitement of taking a bath best about eleven o'clock in the forenoon, after digestion of the morning meal is accomplished, and yet before they are tired out with the fatigues of the day.

BATHE, WHEN TO

The frequency with which a bath should be repeated varies somewhat with different individuals. Some there are whose skins exude a certain amount of strong-smelling matter, for whom a bath twice daily in warm weather is almost a necessity ; whilst others, whose skins are less active as drains for the impurities of the system, need only a daily or thrice-a-week ablution. There is no doubt that bathing, like all other good things, may be carried to excess, and we have often seen patients seriously impair their health by too frequent resort to the bath-tub. At the same time, it is equally certain that by far the majority err in the opposite direction and, as the records of hospitals for skin diseases testify, fail to yield sufficient obedience to the command, "Wash and be clean." A safe rule, to which there are sundry exceptions, would be to bathe the whole body twice a week in winter and every other day in summer, gradually increasing this frequency to thrice a week in winter and daily in summer, if experience proves that better health is secured by such a habit.

BATHERS, ADVICE TO

The following important advice to bathers is issued by the Royal Humane Society, which has its headquarters in London: Avoid bathing within two hours after a meal, or when exhausted by fatigue or from any other cause, or when the body is cooling after perspiration, and avoid bathing altogether in the open air if, after being a short time in the water, there is a sense of chilliness with numbness of the hands and feet; but bathe when the body is warm, provided no time is lost in getting into the water. Avoid chilling the body by sitting or standing undressed on the banks or in boats after having been in the water, or remaining too long in the water, but leave the water immediately there is the slightest feeling of chilliness. The vigorous and strong may bathe early in the morning on an empty stomach, but the young and those who are weak had better bathe two or three hours after a meal; the best time for such is from two to three hours after breakfast. Those who are subject to attacks of giddiness or faintness, and who suffer from palpitation and other sense of discomfort at the heart, should not bathe without first consulting their medical adviser.

BATHING, SEA

See SEA BATHING.

BATHING, WHEN HURTFUL

In the following cases the cold bath is altogether inadmissible. 1. In a general plethora, or full habit of body, and in the febrile disposition which attends it. 2. In active hæmorrhages, or fluxes of blood; that is, bleedings attended with a quick, hard, full pulse, and other signs of an inflammatory tendency. 3. In every kind of acute inflammation. 4. In diseases of the breast, difficult breathing, and short and dry coughs. 5. In gouty and rheumatic paroxysms. 6. In most diseases of the skin. 7. In a state of pregnancy. 8. In palsy. In indigestion it is also generally hurtful, at least at the beginning of the treatment; and wherever it occasions chilliness, loss of appetite, languor, pain of the breast or bowels, or violent headaches, it ought to be discontinued. These unpleasant sensations are the surest proofs that in the then state of the patient's health he is unfit to bear the shock; and that either the reaction of the heart and arteries is too weak to overcome the cold pressure on the surface, or that the determination to the head, or some other vital part, is too rapidly increased.

BATHS FOR CHILDREN, ETC.

Children and elderly persons ought to employ warm or but slightly cool baths, never below 70° F. By persons of nervous temperament, and the subject of valvular disease of the heart, cold baths should be very cautiously resorted to, but by robust adults of sanguine or bilious temperament, they may be indulged in with much greater freedom.

BATHS IN OLD AGE

During every period of life benefit is to be derived from the judicious employment of baths. In old age the tepid bath is that which is most universally applicable. It should therefore be adopted in preference to all others. By the influence of baths the skin is kept healthy and in vigorous action, and those who neglect to employ them deprive themselves of a source of much comfort and health-giving power.

BATHS, PROPER TEMPERATURE OF

Frequently the medical attendant orders a bath, merely mentioning the name, and without giving any instruction as to the temperature. Thus he may order a cold bath, a tepid, a warm, or a hot bath, without giving any further injunctions. In order, however, that the meaning attached to each of these words may be known, the following table is introduced, giving the degree of heat which is represented by the terms thus employed :—

Cold	33° to 65° Fahr.
Cool	65° to 75° „
Temperate	75° to 85° „
Tepid	85° to 94° „
Warm	94° to 98° „
Hot.	98° to 112° „

Vapour baths are also employed :—

Tepid	90° to 100° Fahr.
Warm	100° to 115° „
Hot	115° to 140° „

BATHS, SPECIAL

Many kinds of baths are used medicinally, as valuable adjuncts to treatment. Amongst these are the bran bath, the starch bath, and the gelatine bath. The bran bath is prepared by boiling a pound of bran for a quarter of an hour, straining it and adding it to the bath. The starch bath is made by mixing half a pound of starch or potato-mash in two or three quarts of water ; while the gelatine bath is prepared by dissolving a quarter or half a pound of gelatine in a quart of water. These baths are emollient, or soothing, in their action. Aromatic baths are practically toilet baths, and are prepared by the addition to the water of one of the toilet essences.

BED

As so much of our short lives is spent in bed, it becomes a question of importance what sort of bed is best. There are writers on hygiene who agree that to be healthy a man should live on "hard tack" and sleep on the soft side of a plank, but the weight of authority is in favour of a little more comfort. In former times it was considered a great luxury to possess a feather bed ; of late years, however, feathers have fallen into disfavour, and mattresses filled with wool, hair, or other materials are substituted in their stead. The age and vitality of the person who has to lie on the bed has much to do with the settlement of the question. Thus, for the young and healthy, the mattress is perhaps the most desirable ; but for old people, whose vitality is low, and who therefore *per se* do not generate and throw off much animal heat, a feather bed on top of the mattress is preferable.

BED, GOING TO, IN WINTER

In freezing winter time do not go to bed in a hurry if there is no fire in the room, and there ought not to be unless you are an invalid. But if a person is not in good health, it is best to undress by a good fire, warm and dry the feet well, draw on the stockings again, run into the room without a fire, jump into bed, bundle up, with head and ears under cover for a minute or more, until you feel a little warmth ; then uncover your head, next draw off your stockings, straighten out, turn over on your right or left side, and go to sleep. The soundest general precaution is never to go to bed with cold feet. If your feet are in that condition, as heavy and senseless as lead, sleep will be slow to overtake you and your slumber will be broken until the proper degree of animal heat has been established throughout the body. If the feet are warm but you still feel cold, this is not so much a sign of illness as of insufficient bedding. If a sense of chilliness comes over you on getting into bed it will always do you an injury ; and its repetition increases the ill effects, without having any tendency to harden you. Nature ever abhors violence. We are never shocked into good health. Hard usage makes no garment last longer. Always take care, however, that, even in the height of winter, the bedroom window is opened a few inches at the top. Fresh air in the room is essential to wholesome life.

BEDDING

Mattresses and pillows should be exposed to the air, and if possible to the sun, daily. The bed must not be made until an hour or more after its incumbent of the night has left it, and its internal surfaces have, by a due pummelling and turning of its contents, been well exposed to the fresh air and clear daylight from the open windows. The offensive and injurious odour which is frequently perceived about pillows, is due to imperfect preparation of the feathers ; they have not been properly cleansed, and if examined would be found oily, and containing particles of organic matter, and small insects and worms alive and dead. Steaming, drying, and re-making is the only remedy.

BEDROOM, VENTILATION OF

Though the want of pure air is favourable to stupor, an abundant supply of it is requisite for healthful sleep. It is particularly desirable, therefore, that the bedroom should be spacious and well ventilated. It has been estimated that 3,000 cubic feet is the smallest breathing space to be allowed to two occupants of a bedroom, which should thus have the dimensions of 20 feet in length, 15 feet in width, and 10 feet in height. This, then, is the minimum space consistent with health. The maximum may be extended almost as far as the command of space will allow. Large sleeping apartments are undoubtedly very favourable to health. The desire for free respiration during sleep leads many people to secure an abundant supply of fresh air by leaving a window, communicating with the outside atmosphere, open during the night at all seasons. This is a practice, as is proved by the experience of many a vigorous veteran, favourable to health and long life. If there should happen to be a second room communicating with the bedchamber. it would be well that it at least should have a window wide open during the whole night. Of course draughts are to be avoided ; but these are prevented by a proper arrangement and opening of the doors and windows in relation to each other. Almost any degree of cold in the bedroom will be safe while the sleeper is warmly nestled beneath his blankets. In the case of children and young persons predisposed to consumption, it is of urgent consequence that they should breathe fresh air by night as well as by day, by securing a continuous renewal of air in their bedrooms and nurseries. Let a mother who has been made anxious by the sickly looks of her children, go from pure air into their bedrooms in the morning before a door or window has been opened, and remark the state of the atmosphere —the close, oppressive, and often fetid odour of the room—and she will cease to wonder at the pale, sickly aspect of her children. Let her pay a similar visit some morning after means have been taken, by the chimney, ventilator, or otherwise, to secure a full supply and continual renewal of the air in the bedrooms during the night, and she will be able to account for the more healthy appearance of her children, which is sure to be the consequence of supplying them with pure air to breathe. If we sleep in a close room, the carbonic acid which escapes from the lungs at each expiration is absorbed by the moisture of the breath and, uniting with other impure gases which are always found in close rooms, becomes heavy and settles on the floor, especially if the apartment is cold ; hence the nearer the floor we sleep in cold weather, the more injurious is the air we breathe. We should all be healthier if the bedroom contained nothing but a chair, a table, a bed, and a strip of woollen carpet at its side ; for curtains and furniture gather dust and dampness, and harbour poisonous emanations.

BEDS, DAMP

Damp beds, though perhaps less frequent than damp clothes, are most fatal in their effects ; for not only is the body at rest and not, therefore, able by exercise to warm the surface and thus throw off the ill effect, as can be done with damp clothes, but while we are asleep, it is, from physiological reasons, more open to any malign influence from cold or other causes. When a person doubts whether the bed in which he is about to sleep is well aired, or rather when he does not know for a certainty that it is so, he had better either pass the night out of bed altogether, or remove the sheets and sleep between the blankets. It is not enough that a bed should have been well aired at some distant time, but it should be kept free from damp, as it rapidly attracts moisture from the atmosphere. When there is no likelihood of a bed being required for a considerable able period, the bedding should be stripped and put away, and the mattress rolled up. It can then be much more expeditiously aired when needed for another occupant.

BEDS FOR CHILDREN

The kind of bed and its arrangement are very important in regard to their influence upon the sleep of children. The chief points to be considered are the adaptation to the natural needs as to warmth, respiration, transpiration, and position of the healthy body. The infant, for security, is often put to sleep in a crib, and this, if made with open sides, to allow of a free circulation of air, is unobjectionable. It should be entirely free from curtains, and so constructed that all parts of it and its contents may be accessible for airing and cleansing. The horsehair mattress is the best to lie on, for it gives all the required warmth, while it admits of the passage and evaporation of the natural moisture and vapours of the body. It is, moreover, in consequence of its porousness, easily dried, ventilated, and purified. Its elasticity gives it the further advantage of yielding easily to the pressure and movement of the body, while its ready return to its original form prevents any inequality of surface which might cramp the frame and limbs and tend to disturb them permanently. The feather bed, which has none of the good qualities of the horsehair mattress, should never be used for children. It is advisable even to adopt hair instead of feathers for the pillow, as the latter is apt to be too heating for the head of the child, which has often a great tendency to excessive sweating. The pillow should be always of a sufficient width to support the shoulders as well as the head, and never so high as to raise the latter inordinately. Careful attention to the position, in this respect, of the sleeping child is of great importance, in regard not only to present health, but future grace of proportion. Any interference with the free respiration of the child must be carefully guarded against by a proper arrangement of bed, pillow, and coverings.

BEDSORES

There is a strong analogy between what professional men denominate bedsores, and the severer cases of bruise. When a patient is long confined in the horizontal position in fever, or other acute disease, where the strength becomes so reduced that the sufferer is incapable of sustaining any other than the recumbent position, it is not uncommon for some spot about the buttocks, or at the bottom of the back, to assume the appearance of a bruise and, in consequence of the low state of the vital powers, the part soon dies, the subjacent cellular substance also sloughs, and frequently the most extensive bedsore is the consequence. Long-continued pressure on the part may be considered as one of the exciting causes, and this constitutes the analogy between bedsores and bruises ; but we must proceed to say that this consequence occurs but rarely, unless also, from unconsciousness in the patient, or unpardonable negligence in the attendants, or both combined, the part is allowed to be frequently, and to remain long, wet with the natural excretions of the body, which irritate the skin even when sound, but much more so when previously bruised or excoriated by continued pressure. Preventive means should be taken in every case of long-continued confinement to bed, and particularly where the patient, either from disease or from great age, is not at all, or but slightly, conscious of the calls of nature. Alteration in position, or removal from one bed to another, should be persevered in as long as practicable, frequent renewal of dry clothes, and, above all, sponging with warm water, and carefully drying with soft linen afterwards, must never be omitted in such cases. When change of bed is impracticable, the bed used should be made and kept as comfortable as possible. The Plate illustrating how to change sheets shows how one important means of securing comfort may be accomplished. When bedsores over the lower part of the spine are feared a water pillow should be used so as to distribute the pressure over a larger surface, sufficient water being employed to keep the patient from contact with the bed but not enough to make the pillow hard. The part most likely to be affected is the lower part of the back, and this in addition to being washed and thoroughly dried two or three times a day should be kept well dusted with powdered boracic acid. Once a bedsore has formed a circular water or air pillow should be employed so as to entirely avoid pressure over the bedsore itself. The sore should two or three times a day be bathed with carbolic acid lotion of a strength one in forty, and dressed with eucalyptus ointment or balsam of peru.

BEEF, ESSENCE OF

Take a pound of gravy beef, free from skin and fat, chop it fine, put it into a mortar along with three tablespoonfuls of soft water and pound it; then allow it to soak for two hours, put it into a covered earthen jar, with a little salt, the edges of the jar being cemented, and a cloth tied over the top. The jar should then be placed in a pot half full of boiling water and kept on the fire for four hours. It should then be strained through a coarse sieve, so that not only the fluid, but also the smaller solid particles of the meat, may pass. Two teaspoonfuls or more of this may be given at a time.

BEEF-JUICE, RAW

Raw beef-juice is far more valuable, both as a restorative and as an article of food, than any form of beef-tea. It is indeed the most easily digested of all animal foods, and according to Cheadle, is the most valuable of all nitrogenous preparations for children. It may be prepared by mincing rump steak and adding one tablespoonful of cold water to each tablespoonful of the minced meat. This mixture should be well stirred and allowed to soak for half an hour, cold, the juice should then be forcibly squeezed through muslin by twisting. So rich is this liquid that it clots into a solid mass on boiling. It has the further advantage over beef-tea in that it mixes readily with milk, and its presence therein can hardly be recognized by taste. Raw meat juice is not only rich in albumen, but also in those salts the presence of which in the dietary is so essential, especially in the case of children. This preparation, however, does not keep well, and should be made fresh at least twice a day.

BEEF-TEA

Either of the following recipes will be found useful in making beef-tea. (1) After removing all skin, fat, and gristle, from a pound of rump steak, cut it into squares, and put it into a large-mouthed bottle, add a little salt, and, having corked it tightly, put it into a saucepan with cold water, and allow it to boil for six hours. Skim, strain, season, and serve hot. (2) Take a pound of beef, and having minced it fine, put it into a common earthenware teapot, with a pint and a half of cold water. Place the pot upon the hob, and allow it to simmer for at least three hours. Thus about three-quarters of a pint of good beef-tea will be obtained. Although beef-tea contains only a small amount of solid nitrogenous matter, each pint of it, as ordinarily made, containing "scarcely a quarter of an ounce of anything but water," it nevertheless is possessed of great stimulating power in sickness. Added to other articles of diet, beef-tea greatly augments their power. So many excellent preparations of beef are now manufactured that it is almost the exception to make beef-tea. These preparations are available at a moment's notice, and a patient's meal or a nourishing cup can be prepared without loss of time.

BILE

(Latin, **bi′lis,** " bile ").

The bile is a liquid secreted or produced by the liver, whence it passes either direct or after storage in the gall-bladder to the upper part of the intestines. From the fact that it enters the digestive canal so nearly at its commencement it will at once be seen that the bile has work to do in the body, and is not, as is often supposed, an excretion or waste product to be got rid of as soon as possible. This view is confirmed by the fact that when from any cause the bile is diverted from its natural course and does not enter the intestine emaciation results, consequent on the non-digestion of fat. This is indeed the principal function of the bile, though it promotes also to some extent the digestion of proteids and sugar as well. The bile contains certain pigments to which its yellowish-green colour is due, and when for any reason the passage of bile is obstructed this yellow colouring is distributed throughout the body, and is especially noticeable in the " whites " of the eyes. This condition is known as Jaundice.

BILIOUS FEVER

This is another name for remittent fever, a disease which has its origin in malarial poisoning.

BILIOUS FEVER, SYMPTOMS OF

The symptoms of bilious fever resemble those of intermittent fever or ague, with this exception, that there is no cessation of fever, but just a diminution or abatement. The length of the remission varies from six to twelve hours, the remission ordinarily taking place in the morning. Bilious fever may last for fourteen or fifteen days, and terminate in an attack of sweating, or it may merge into low fever.

BILIOUS FEVER, TREATMENT OF

The first thing is to diminish the fever by giving the patient cold drinks, sponging the body with cold water, and acting mildly on the bowels by means of cream of tartar water. Ten grains of quinine should be administered during the remission. Should the patient be much depressed, let him have raw eggs, nourishing broth, and stimulants. The treatment of remittent fever should always be entrusted to a physician. The same course should be pursued in convalescence as in intermittent fever, and care should be taken to prevent a relapse. To provide against this the patient should continue to take Peruvian bark for some time after his recovery. He should also limit himself to a simple diet, avoiding confections and all sorts of flatulent food.

BILIOUS ATTACKS, TREATMENT OF

A bilious attack being essentially a digestive disorder, the process of digestion being practically arrested for the time, and the appetite completely lost, the first principle of rational treatment consists in entire abstinence from food. The lining wall of the stomach becomes covered with mucus, and the micro-organisms which cause or accompany fermentation are very active. It is therefore important to take steps to wash out the stomach by taking large draughts of water or soda water, to get rid of the undigested fermenting material by means of purgatives, and to control the processes of fermentation by means of antiseptics. The following pill may be taken at night: pil. hydrarg. three grains ; ext. aloes, one grain, ext. hyoscyam. one grain. This should be followed the next morning by a Seidlitz powder or a drachm or two of Epsom salts. No alcohol in any form should be taken. If the patient is willing to rest, to take no food whatever, to drink a couple of quarts of water or soda-water in the day, and to take the pill and saline draught advised above, a bilious attack in most cases passes off in twenty-four hours or less. Indeed by adopting the treatment when the attack is threatened and before it has actually developed, the more unpleasant symptoms may generally be avoided altogether.

BINOCULAR VISION

(Latin, from **binus,** "double," **oculus,** "eye").

The simultaneous use of both eyes is called "binocular vision," and to secure its correct and full effect the eyes must have nearly the same acuteness of vision and degree of refraction, and the action of the external muscles must be so balanced that both eyes may be properly directed to the same object. There are, of course, two images formed of every object that we look at, one on each retina, and they are so combined by the brain as to give the impression of one object only, when they fall on what are called corresponding parts of the two retinæ. The principal advantages of binocular vision are in the appreciation of the solidity (the "three dimensions") of objects and in the accurate determination of distance. We are greatly assisted in the estimation of distances by the simultaneous use of both eyes, for each eye gives accurately the direction of the object, and we know that its position must be at the intersection of these lines of direction. Persons who have lost one eye are much inconvenienced by the want of this assistance, as may be appreciated by attempting to thread a needle, or to touch a spot on paper with the point of a pencil quickly, with one eye closed. In looking at an object closely, the eyes are turned towards it, or converged, by the action of the internal straight muscles—another muscular effort involved in near vision, which is far from being the merely passive sensation that it is too often considered to be.

BIRTH OF CHILD, WHAT SHOULD BE DONE AT

As it sometimes happens, especially in the case of those who reside in the country, and at some distance from medical assistance, that the child is born before the doctor has had time to be sent for, it will be well for those who are in attendance to know how to act in the meanwhile. It is desirable, therefore, to lay down a few plain rules for the guidance of those who may at any time be thus awkwardly situated. As the head is being born, one of the attendants should place her left hand upon the patient's belly and grasp the womb. The object of this is that she may be able to follow it as it contracts and expels the child, and when the infant is born that she may keep hold of it until the arrival of the doctor, or, at any rate, till the after-birth has come away. Unless this simple precaution is attended to, the patient may suffer from flooding, and her life be endangered. When the head is born, one of the attendants should place her hand upon the child's neck and feel if there be any coil of cord round it; and if there be it ought to be loosened or it may be removed from the neck altogether. It is very important that this should be attended to without delay, as the child may be very easily strangulated if the cord is wound tightly round the neck. Having ascertained that everything is right, that there is no coil of cord about the neck of the child, the right hand of the attendant should be placed under the infant's head to direct it forwards as the body is born, which will generally be in a few seconds afterwards. On the child being born, if strong and healthy, it will generally begin to cry. If, however, instead of crying it remain in an apparently lifeless condition, efforts must be made as speedily as possible to cause it to breathe. For this purpose the child should be smartly tapped upon the buttocks, back, or chest, which will, in many instances, have the desired effect of bringing it round. Should this procedure, however, not have the desired effect, what is called artificial respiration must be had recourse to. Artificial respiration may be performed as follows :—The hands of the infant are seized by the attendant and raised from the side until they are lifted above the child's head as far as they will go, by doing which the act of inspiration or drawing of air into the chest is imitated, after which the hands and arms are to be depressed until they are brought to the side again, by which the air will be driven from the chest, and the act of expiration be thus imitated. Suppose, however, that the child has been born, and that as soon as it comes into the world it begins to struggle and kick violently, what is to be done? If the medical attendant is likely to arrive presently, the infant's head should be turned towards the end of the bed, so as to be away from the discharges, and the bed-clothes so arranged as to admit of a plentiful supply of air. Beyond this nothing need be done in such cases. If, however, it is uncertain when the doctor may arrive, or if it be in the country, where the presence of skilled assistance cannot always be depended on just when wanted, it will generally be necessary to divide the cord, and thus sever the child from its connexion with the parent. This may be done in the following manner :—The cord being taken up in the left hand, a piece of tape, several strands of whitey-brown thread, or two or three thicknesses of yarn, are passed round it and tied in a double knot about the distance of three fingers' breadths from the baby's navel. A second ligature should then be placed about an inch and a half nearer to the mother, and midway between these two ligatures the cord is to be divided. The application of this second ligature is not absolutely necessary in the great majority of cases, but it is always better to apply it. This having been done, the child is to be placed in the flannel receiver and removed to a secure place. This should not be an armchair, or other place of a like nature, where the child runs a risk of being injured through the carelessness or forgetfulness of those in the room. Further attention must now be directed to the mother. The first question which naturally suggests itself on turning again to her is, "What of the after-birth? Is it to be removed, or should it be allowed to remain?" The answer to this is, that "the less the attendants interfere with the after-birth the better." Any rash attempts at removing it by pulling upon the cord may be followed by severe flooding, or by breaking of the cord, the after-birth remaining in the womb. Frequently, indeed, the after-birth comes away a short time after the child is born, the same pain that brings about the expulsion of the latter, giving rise to the loosening of the former, so that on the recurrence of the pains after a short period of rest it is frequently expelled. Sometimes, also, the same pain which caused the birth of the child expels the after-birth, which follows upon the infant's heels. Should it not come away by the normal contractions of the womb, no attempt is to be made to remove it. The hand of the attendant, which has been grasping the womb, must not be relaxed, but should be kept there incessantly until the arrival of the medical man. This pressure by the hand over the lower part of the belly upon the womb is a great safeguard against the occurrence of flooding, and frequently will be found of assistance in causing the expulsion of the after-birth. Care must be taken, in removing the child from the bed, that in lifting it a sufficient hold is obtained. It sometimes happens that by the careless manner in which children are lifted they fall, and are seriously bruised and injured. The way in which a child can be best lifted is by taking the back of his neck between the thumb and forefinger of the right hand, and allowing the buttocks to rest upon the palm of the left. In this manner the child may be lifted with perfect security and placed in the receiver. (*See also* CHILD, TREATMENT OF, AFTER BIRTH.)

BITES AND STINGS

The bite of certain insects and reptiles, and the sting of others, as well as the sting from certain plants, are punctured wounds, with the addition of a poison introduced into the wound. The latter circumstance accounts for the succeeding inflammation being so disproportionate to the wound and, in certain irritable constitutions, running high and requiring constitutional treatment. In all cases of sting or bite, it is a good plan to suck the part perseveringly, whenever it can be done, by which means the absorption of the poison into the circulation is suspended or prevented, and the warmth and moisture thus applied act as a fomentation to the part. It is a fact pretty generally known, that no mischief ever ensues from the poison thus entering the stomach of the person who sucks the wound, not even the poison of the viper, which is the most virulent of British animal poisons, or that of the rattlesnake of other climes. The lips, however, should be perfectly free from any bruise, cracks, cut, or scratch. Ammonia and dabbing with the blue-bag are also efficacious, the former especially for the bite of gnats and mosquitoes. The sting or bite frequently produces at the spot a wheal, which in appearance and in the symptoms which attend it closely resembles nettle-rash, differing only in being a local trouble. At the summit of such swellings the puncture made by the insect may usually be observed. Trifling constitutional disturbances, with a little transient fever, may co-exist, especially in children. This, as a rule, speedily subsides, along with the local difficulty. Many persons once inconvenienced by such irritation are free from it for the season, the subsequent attacks of mosquitoes and so on resulting in much less distressing consequences thenceforth. About the eyelids and in persons of feeble health, these wounds occasionally give rise to abscesses, which must be opened and treated in the usual way. The wheals are to be treated by lotion of vinegar, alcohol, ammonia and the like. Soda solutions, of the strength of one or two drachms, steadily mopped on, will be found to be fully as useful as any other remedy. A preparation of one part of menthol in ten parts of alcohol is also recommended. Ticks are to be removed by pouring on them a drop of oil. They must never be forcibly removed, lest some part be left on the skin to keep up the trouble. It is important to avoid scratching and other irritation of the wounds made by insects, as it intensifies the suffering and retards their healing. Persons camping out are apt to suffer from the attacks of black flies during the early months of summer. The effect of their bites is similar to that of the mosquito. In the later months the harvest-mite is troublesome in cultivated regions, attacking the legs and feet. The last may, to some extent, be escaped by using some aromatic oil. In the case of stings of bees and wasps, stimulants, such as brandy and water, or sal volatile, should be at once administered, and the seat of injury carefully searched for the sting, which is generally left in, whilst the wound should be treated with sal volatile, vinegar, eau de Cologne, sweet oil, ammonia or the juice of an onion ; or an onion may be cut in half and rubbed on the spot to relieve the pain and reduce the swelling. Supposing the throat be stung in drinking, there is, of course, great danger of suffocation. Leeches may be applied outside the throat, a gargle of hot salt and water used immediately and the doctor should be summoned.

BLACK DRAUGHT

See DRAUGHTS.

BLACKHEADS

See ACNE.

BLADDER, URINARY

The urinary bladder is the receptacle for the urine after it has been secreted by the kidneys, and previous to its discharge from the body. It is an oblong membranous bag composed of three coats or layers, the middle one being muscular, and is situated in the pelvis just behind the pubic bone, rising, however, when much distended, into the abdomen.

BLADDER, INFLAMMATION OF, SYMPTOMS OF

The symptoms of inflammation of the bladder are great pain in the groins, and lower part of the back, and tenderness over the bladder. There is very frequent desire to pass water, attended with great efforts to do so ; a whitish ropy mucus is deposited in the urine, accompanied with feverish symptoms.

BLADDER, INFLAMMATION OF, TREATMENT OF

Hot baths and hot fomentations should be applied, with the administration of calomel and castor oil to relieve the abdominal circulation. The pain may be allayed by opium or morphia, either internally, or as a suppository, and copious draughts of bicarbonate of potash and lemon juice. The diet should be simple and consist mostly of bland farinaceous food. No stimulants whatever must be given. So long as the symptoms remain severe the patient must keep in bed. The doctor should be called in, if only because the emptying of the bladder with a catheter affords marked relief, while the washing out of the organ with an antiseptic soothing solution promotes cure.

BLADDER, IRRITABILITY OF

The bladder affections from which the pregnant female is liable to suffer are those of irritability, incontinence, and retention. The distressing condition of irritability is of frequent occurrence during pregnancy. In the early months it appears to be of sympathetic origin, while later it is the result of the mechanical pressure exerted by the enlarged womb upon the bladder. If allowed to go unrelieved, it may seriously impair the general health by the continual disturbance of rest to which it gives rise. Much relief will be afforded to those who suffer from this affection by the free use of barley-water as a drink, and by taking, at bed-time, a pill composed of three grains of the extract of henbane and two grains of extract of gentian. Other means may be employed, but should these fail medical advice had better be sought. Mild laxatives must be administered from time to time, so as to keep the bowels acting freely.

BLEEDERS

In certain families there exists an hereditary constitutional fault, characterized by a tendency to almost uncontrollable bleeding from very slight wounds, or, in some cases, apparently spontaneously. In nearly all cases the condition is hereditary, and Osler mentions a case of a family in which there have been cases in each generation for nearly two centuries. Generally the tendency first manifests itself before the second year, and until excessive bleeding has actually occurred from some trivial cause no symptoms are displayed which would lead to a suspicion of the unlucky taint. The bleeding which follows the slightest operation or the merest scratch is often of the most serious nature: many cases of fatal bleeding having occurred after the extraction of a tooth. In many cases of haemophilia—as this tendency to excessive bleeding is termed—the patients are liable to be seized with acute inflammation of the joints, much after the manner of rheumatism. The nature of this remarkable disease is not yet understood, and it is not clear whether it is the walls of the blood-vessels or the blood itself which is at fault. No treatment is of much avail. When bleeding is actually occurring the usual steps taken for the suppression of haemorrhage must be followed. Members of a family in which the tendency to bleeding is known to exist should take exceptional precaution to avoid injury, and all operations not absolutely necessary should be avoided. The daughters of the family should not marry, as it is through them that the tendency is transmitted, even though they themselves may not be bleeders.

BLEEDING

This is a procedure not often adopted now, except in cases of heart or lung disease, when there is great obstruction to the circulation. Formerly, nearly every one was bled, as a matter of course, every spring and autumn. The operation was performed thus:—The patient, sitting in a chair, bares his arm, and the surgeon fastens a piece of tape, for bandage, tightly about two inches above the elbow; in this way the return of the venous blood to the heart is prevented, so that the veins in the bend of the elbow swell up and become prominent. The surgeon then slits up the vein with a sharp lancet, and draws as much blood as may be required. Gentle friction along the arm will encourage the flow of blood. Bleeding is a mischievous practice except in cases where the venous system is too full, and where the abstraction of five or six ounces of blood may prove beneficial. Whatever benefits accrued from the practice are now obtained by other means.

BLEEDING AFTER TOOTH-DRAWING

See TOOTH-DRAWING, BLEEDING AFTER.

BLEEDING FROM NOSE, SYMPTOMS OF

A considerable discharge of blood from the nose is usually preceded by chilliness, coldness of the limbs, weariness, pains of the back and head, costiveness, frequent, full, and sometimes hard pulse, with heat, fulness, and tension about the nose, strong beating of the arteries of the head and neck, and flushing of the face ; but, occasionally, bleeding from the nose, like all other bleedings from constitutional causes, makes its appearance without any preceding symptoms, especially when it is inconsiderable. Whatever are the symptoms preceding this flow of blood, the chief cause generally lies in an unhealthy condition of the constitution, or in a confined state of the bowels. The former seems to obtain most frequently in adults, and the latter in children. It is very seldom dangerous.

BLEEDING FROM NOSE, TREATMENT OF

In the treatment of this discharge of blood, it is necessary we should first consider whether it be owing to a plethoric or a debilitated state of the body, and whether it appears to afford relief from any previous unhealthy symptom, or is attended with manifest injury. For, in full habits, where there is considerable corporeal vigour, it is generally attended with advantage, and our principal regard should be paid to prevent its continuing too long, or being too profuse ; while in weakly persons it is frequently hurtful, and, for the most part, requires to be checked without delay. If, then, a considerable hæmorrhage from the nose occur in a young or middle-aged person, in whom no weakness is apparent, but rather a sufficient circulation of blood, the best and most proper remedies will consist in local astringents and emetics. The face may be frequently immersed in the coldest water, and the temples, or even the whole head, be surrounded with a band or napkin moistened with it, and frequently changed. Cold applied to the back by means of cold cloths or any cold metal, such as a bit of iron, will frequently succeed ; or cold water and vinegar may be thrown up the nostrils with a syringe. These means will seldom fail to check the flow of blood ; but when they do, an emetic of twenty grains of ipecacuanha powder may be administered in water, which is often a powerful remedy. Plugging the nostrils with cotton wool or antiseptic gauze may be necessary.

BLEEDING, HOW TO STOP

See HÆMORRHAGE.

BLINDNESS

Those who have never enjoyed the sense of sight probably cannot realize what they have missed, though it may be questioned whether their lot is not really more pitiable than is that of those who, after exercising the faculty for many years, have, from whatever cause, been rendered totally blind for the rest of their lives. John Milton was forty-four before he lost his sight and Henry Fawcett was twenty-five when he was shot in both eyes whilst engaged in partridge-shooting. Milton's calamity inspired the magnificent apostrophe to Light with which the third book of *Paradise Lost* opens, but his experience informed the beautiful passage at which he professed his delight at still being able to wander in memory amidst the haunts of the Muses, or that in which he invoked the solace and support of celestial light to irradiate his mind. Blindness either is due, speaking broadly, to disease of the optic nerve or of adjacent parts involving the nerve, or may be the result of such illnesses as measles, scarlet fever, whooping cough and smallpox. In some cases, comparatively few in number, infants are born blind, but inflammation of the eyes in babies, which has been neglected or ignorantly treated, is a fruitful source of eye mischief and actual loss of sight. Apart from troubles directly affecting the eyes and such complaints as those already mentioned, accidents such as gunshot wounds, the unexpected discharge of explosives in blasting operations, and the malicious use of certain chemicals have not infrequently destroyed the sight. Much has been done to ameliorate the condition of the blind. Institutions in which they are cared for and workshops where they are trained to follow a variety of trades have been established in many countries, while societies have been founded for the purpose of visiting them in their homes with the twofold object of alleviating the monotony of their lives and imparting the elements of knowledge. Nor are the professions denied them and blind students are to be found attending many universities and musical *conservatoires*. For more than a century several systems of printing have been in vogue, whereby the blind can now read the Bible and the greatest of the world's classics. Of these systems the one that is probably destined most completely to meet the requirements of their case is that invented by a Frenchman named Louis Braille (1809–52), whom an accident had deprived of sight when three years old. This system consists of a combination of thick and thin dots and its extreme simplicity has commended it, very generally, to the blind themselves.

BLISTERED FEET IN WALKING.

To prevent the feet from blistering, it is a good plan to soap the inside of the stocking before setting out. After some hours on the road, whenever the feet are beginning to be chafed, take off the shoes and change the stockings, putting what was the right stocking on the left foot, and the left stocking on the right foot. Or, if only one foot hurts, take off the boot and turn the stocking inside out. When a blister has formed, the feet should be rubbed, on going to bed, with spirits mixed with tallow dropped from a candle into the palm of the hand ; next morning the blister will have disappeared. The spirits seem to possess the healing power, the tallow serving only to keep the skin soft and pliant. A little boracic or eucalyptus ointment is equally effective and simple of application.

BLISTERS.

No blister should be applied

unless ordered by the physician. By the careless application of blisters, large and disfiguring scars may be left, and much harm result. There is also danger that the cantharides, of which they are composed, may be absorbed and give rise to strangury, or difficulty or pain in making water. With a view to obviate this, blotting-paper soaked in oil should be placed between the blister and the skin. By dissolving the active principle of the cantharides more quickly, its action is rendered more prompt, and in this way it was thought that the occurrence of painful micturition would be prevented. The best application, however, for this purpose is to sprinkle the surface of the blister with camphor. A solution of camphor in ether may be made by pouring ether over a piece of camphor till the camphor is dissolved. Some of the solution thus prepared should then be sprinkled over the surface of the blister ; the ether evaporates, and an invisible film of camphor is left behind. The blister is usually allowed to remain on for six or eight hours ; but in those who are of an irritable temperament it may be removed sooner ; and if it has not risen, a poultice applied after its removal will generally effect this. The blister should be retained in position by means of a bandage suited to the part to which it is applied, or by strips of adhesive plaster, or by being spread upon plaster. Previous to applying the blister, the only preparation that is required is to wash the part with soap and water, and dry it well with a rough towel, using sufficient friction, while so doing, to make the part glow. Some prefer applying a mustard poultice previous to applying the blister, but this is unnecessary.

BLISTERS, AFTER-TREATMENT OF

The after-treatment of any blistered part will vary according as it is desired to keep the sore open or to heal it. Usually it is desired to heal it, and for this purpose, on removal of the blister, the blebs or vesicles should be cut with a pair of scissors in their most dependent part, after which a piece of boracic cotton wool should be applied. On removing this, three or four days afterwards, the sore will generally be found to be quite healed. Instead of cotton wool being used, the sore is frequently dressed with boracic ointment spread upon lint. This also forms a very nice and cooling application, and answers well.

BLISTERS, SORE FROM, HOW TO KEEP OPEN

Should the intention be to keep the sore open, the cuticle must be removed by cutting round the edges with a pair of scissors ; or, instead of doing this, a bread poultice may be applied, which will answer the purpose equally well. Some irritating substance is then applied upon a piece of lint or rag, which should not be larger than the blistered surface, as it would then unnecessarily irritate the surrounding sound skin. The substance which is most usually employed for the purpose is savin ointment. As a flux results from the application of this ointment, it ought to be removed by means of a poultice each time before the new dressing is applied. If this be not attended to, the part will dry and heal. Sometimes it is desirable to cause a more rapid blister, in which case blistering fluid should be made use of. This should be painted on with a camel's-hair pencil, care being taken to prevent it from spreading beyond the part which it is wished to act upon. This forms a very ready and efficient means of producing a blister. The strong solution of ammonia is sometimes used for the same purpose ; and here the same care must be taken to prevent it from spreading, as in the former case.

BLOOD

The blood as it is found flowing in the living body seems to be a thickish, heavy fluid, of a bright scarlet colour when issuing from an artery, but of a deep purple or nearly black colour when coming from a vein. When it is examined, however, under the microscope, we find that it really consists of a colourless fluid in which there are millions of minute coloured globules. These little globules are the real source of colour, which seems to the naked eye to belong to every part of the blood alike. The colourless fluid portion of the blood is called the *liquor sanguinis*, or plasma ; the coloured minute bodies are termed the blood globules, or blood corpuscles. The blood of a man is heavier than water : its specific gravity being 1·055 ; that is to say, if a certain quantity of water weighs 1,000 grains, the same quantity of blood will weigh 1,055 grains. There is a peculiar smell connected with human blood, most easily recognized when blood is just drawn. It is not difficult to tell the kind of animal from which blood has been obtained, by comparing the smell of the blood with the smell of the animal. The strong odour of the pig or cat, and the peculiar milky smell of the cow, are very easily detected.

BLOOD, CIRCULATION OF THE

The blood is composed of all matters necessary—first, to the formation of the various structures of the body, and secondly, to keeping up their temperature. The first it receives, through the stomach and alimentary apparatus, from the food—as we shall see in a little—and it leaves behind it the old waste matters to be carried off by the excretory apparatus. The latter, oxygen, it absorbs in the lungs, giving up in exchange carbonic acid, which, or, at any rate, one of its elements—carbon—it has taken up from all parts of the body. It is clear enough, then, that the blood must be continually travelling from the sources of supply to those of deposit. This travelling is known as the circulation. Let us suppose the left ventricle filled with blood of a bright vermilion, containing all the pure elements of nutrition, and saturated with oxygen. The ventricle contracts, the blood is forced to leave it by the great artery, the aorta (it is prevented by valves from doing so by the only other outlet, namely, that into the left auricle), and to go through all the arterial branches into the capillaries, there to deposit the specific nutriment for each structure, and take up carbonic acid in exchange for oxygen. It then makes its way back through the veins of a deep purple colour, loaded with carbonic acid, and, until it reaches the venæ cavæ, also drained of its nutritious qualities, which it here again receives, and finally re-enters the heart by the right auricle in its dark deoxygenized condition. The right auricle now contracts, and as the valves in the veins prevent it from regurgitating in them to any large amount, it escapes by the only other outlet into the right ventricle. The right ventricle now contracts—the blood within it is prevented by the valves from flowing back into the right auricle, and is therefore propelled through the pulmonary artery into the capillaries in the air-vessels of the lungs ; the lungs at the same time expand and draw in air ; oxygen passes through the membranous walls of the air-cells into the blood, and carbonic acid in the same manner passes out of the blood into the air-cells, and from them to the external air ; and the blood, thus reoxygenized, and again bright scarlet, flows through the pulmonary veins into the left auricle, which, like the right auricle, contracts, and sends the blood into the left ventricle. This circulation of the blood through the lungs and back again is called the lesser circulation.

During its circulation through the body the blood is being continually deprived of some of its constituents. The numberless organs and tissues of which man's body consists are undergoing perpetual change, and in carrying out its function some part of each organ is destroyed. Thus we cannot think, feel, or move without wasting some portion of the brain, nerves, or muscles. All the larger arteries are deeply seated, by which arrangement they are protected from injury by accidents, while the veins, which do not involve so serious consequences in case of wounds, are generally placed near the surface of the body—often immediately under the skin, as on the back of the hand and upon the wrist. "Some knowledge of the position of the arteries," it has been well observed, "and especially of those points at which they can be most easily felt and compressed, may at times be useful to all. It is no uncommon thing for medical men to be called to accidents in which immense and injurious loss of blood has taken place from a wounded artery, which might have been saved to the sufferer by any one possessed of sufficient knowledge and presence of mind to put his thumb on the main trunk of the vessel."

BLOOD, CIRCULATION OF, NERVOUS INFLUENCES ON

See NERVOUS INFLUENCES ON CIRCULATION OF THE BLOOD.

BLOOD, COAGULATION OF THE

The physical properties of the blood are highly curious. When blood is taken from its blood-vessel, and allowed to remain at rest, it soon separates spontaneously into two distinct parts, into a solid mass and into a fluid matter, in which the solid mass swims. The solid portion of the blood is termed the clot ; the fluid portion is called the serum ; and the process by which the separation takes place is denominated coagulation. This coagulation or clotting of the blood always takes place when blood escapes out of a vein or blood-vessel. The blood never clots within healthy blood-vessels, such as veins and arteries. Directly the blood escapes from a vein or an artery, and comes in contact with any dead material, such as the ground or a stone, or a glass jar, or any kind of vessel, it at once begins to clot, or coagulate. Or, in other words, the mere contact of dead material with blood causes the formation of fibrine, or clot, in that blood. This leads to the explanation of the curious fact that if you cut your finger or prick yourself, although at first a little blood escapes from the wound, yet after a little while the bleeding ceases. Why is this ? Why does not the wound go on bleeding till you have lost every drop of blood in your body? Well, the blood ceases to flow from the wound because, very soon after the blood comes in contact with the cut or wounded flesh, it begins to coagulate, or clot, and the clot forms a plug or cork to the open ends of the small injured blood-vessel. It is the formation of fibrine or clot in the wound and in the mouths of cut blood-vessels that prevents our bleeding to death whenever we cut our flesh. When the wound is large, however, and the clot which forms is driven out of the wound by the stream of blood, there is danger of bleeding to death unless means are taken to stop the escape of blood.

BLOOD, CONSTITUENTS OF THE

The various constituents of the blood may be seen from the following table, which indicates the substances which form the immediate composition of every 1,000 parts of human blood :—

Water		784·00
Albumen		70·00
Fibrine		2·20
Cells	Globulin	123·50
	Hæmatin	7·50
Fat	Cholesterine	0·08
	Cerebrine	0·40
	Seroline	0·02
	Oleic and margaric acid Volatile and odorous fatty acid Fat containing phosphorus	0·80
Salt	Chloride of sodium	3·60
	Chloride of potassium	0·36
	Tribasic phosphate of soda	0·20
	Carbonate of soda	0·84
	Sulphate of soda	0·28
	Phosphates of lime and magnesia	0·25
	Oxide and phosphate of iron	0·50
Extract salivating matter, urea, colouring matter of bile, accidental substances		5·47
		1000·00

In this table sugar is omitted, yet it is known that sugar, in varying quantities, always exists in the blood quitting the liver, where it is formed from albuminous matter, and is also generally found in blood at other parts of the organism; but because this sugar rapidly undergoes transformation into other substances, its amount cannot be estimated.

BLOOD, SUPPLY OF, TO SKIN

The blood supply to the skin is very abundant, as may be judged from the fact that even a fine needle cannot be introduced into it without drawing blood from some capillary or delicate blood-vessel. At the upper or outer portion of the corium, the blood-vessels, or arteries, which have become exceedingly fine and delicate (and are called capillaries, from the Latin *capillus*, a hair, so very minute are they), rise into each one of the many papillæ, or elevations of the papillary layer, and doubling upon themselves they descend again and become veins, and finally enter the larger veins whereby the blood is carried again to the heart and the lungs to be purified. The outer or epidermal layer contains no blood-vessels, its cells are nourished indirectly from the portions beneath. Hence blood is not drawn by a blister, or when the skin is lightly scraped or rubbed off; it is only when the deeper layer, or corium, is reached and wounded that blood is obtained.

BLUSHING, CAUSE OF

See NERVOUS INFLUENCE ON CIRCULATION OF BLOOD.

BODY, COMPOUNDS OF

The compounds of the body in which the organic elements exist, and their weight in a body weighing 154 lbs., are as follows :—

	lb.	oz
Water, containing oxygen and hydrogen	111	0
Gelatin, containing oxygen, hydrogen, carbon, and nitrogen	16	0
Albumen	4	3
Fibrine	4	5
Fat, containing carbon and hydrogen	12	0

BODY, ELEMENTS OF

The human body is composed of the same elements as are found entering into the composition of the mineral substances found on the earth's surface. The following is a list of the quantities of the various elements found in a human body weighing eleven stone, or one hundred and fifty-four pounds :—

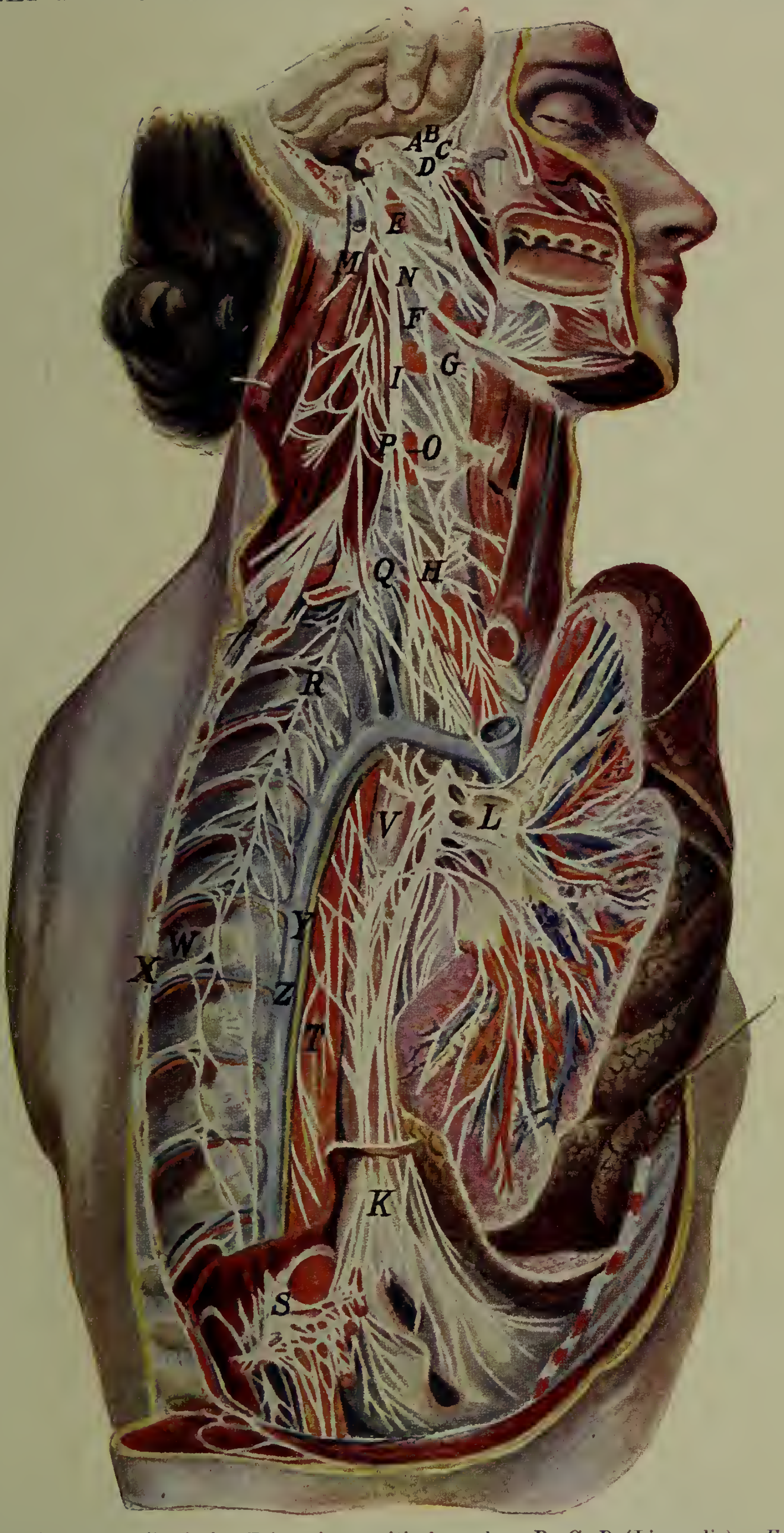
	lb.	oz.	gr.
Oxygen	111	0	0
Hydrogen	15	0	0
Carbon	20	0	0
Nitrogen	3	9	0
Phosphorus	1	12	190
Sulphur	0	2	217
Calcium	2	0	0
Fluorine	0	2	0
Chlorine	0	2	382
Sodium	0	2	116
Iron	0	0	100
Potassium	0	0	290
Magnesium	0	0	12
Silicon	0	0	2
Total	154	0	0

It will be seen that the first four elements are oxygen, hydrogen, carbon, and nitrogen. These are non-metallic elements and enter largely into the composition of all organic beings. No organic being can be developed without these four elements ; hence they have been called organic elements. The next elements of importance are undoubtedly phosphorus and sulphur. Chlorine, fluorine, and silicon are non-metallic elements. The rest are metals. Of these, sodium is most abundant and iron and silicon are least so. Nevertheless, they are necessary. Even the absence of the small quantity of silicon is accompanied by diseased conditions. Thus the enamel of the teeth in a healthy condition contains silicon ; but if this is absent, the enamel is not properly formed and the teeth quickly wear away and become comparatively useless. The elements, however, are not found in the body in their pure state, but are mixed together, forming the following compounds :—

	lb.	oz.	gr.
Water	111	0	0
Gelatine	15	0	0
Fat	12	0	0
Albumen	4	3	0
Fibrine	4	4	0
Phosphate of Lime	5	13	0
Carbonate of Lime	1	0	0
Fluoride of Calcium	0	3	0
Chloride of Sodium	0	3	376
Chloride of Potassium	0	0	10
Sulphate of Soda	0	1	170
Carbonate of Soda	0	1	72
Phosphate of Soda	0	0	400
Sulphate of Potash	0	0	400
Peroxide of Iron	0	0	150
Phosphate of Potash	0	0	100
Phosphate of Magnesia	0	0	75
Silica	0	0	3
Total	154	0	0

The above are the principal permanent compounds found in a human body. Water is composed of oxygen and hydrogen and constitutes two-thirds of the bulk and sometimes even more of the whole organic kingdom. Gelatine is composed of the four inorganic elements and is found in the cell walls of the animal tissues. It is especially abundant in the bone cells and in the skin. Fat is a compound of carbon, hydrogen and oxygen. It is distributed over the body in the adipose tissue and is also found in the marrow of the bones, in the joints and other parts. Albumen contains the four organic elements. It is found in the blood and is the principal substance entering into the composition of the nerves.

DEEP-LYING NERVES OF THE THROAT AND BREAST.



A, the Ganglion Gasserii of the Trigeminus with branches *B*, *C*, *D* (Lingualis). *E*, the Glosso-pharyngeal with branches *F*, *G*, *H* to the Larynx. *I*, the Vagus with those of the Stomach (*K*) and Lungs (*L*). *M*, the Accessory, the eleventh Cranial Nerve. *N*, the Hypoglossus, or Motor Nerve of the Tongue. *O*, the Carotid Artery. *P*, *Q*, *R*, *S*, various parts of the Sympathetic Nerve. *T*, Aorta. *V*, Œsophagus. *W*, Ribs. *X*, Section of the Ribs. *Y*, the great Lymphatic. *Z*, Veins.

Fibrine differs very slightly from albumen. It is not found dissolved in the blood like that substance, but is suspended in it and coagulates when the blood is allowed to stand. It enters into the composition of the muscular tissue. Phosphate of lime is found in the bones. A half part by weight of the human skeleton is composed of phosphate of lime. Carbonate of lime is found also in the bones, in the proportion of about 10 per cent. Fluoride of calcium is also found in bones of human beings. It is often found in large quantities in fossil bones, and the quantity of fluoride is said to be a guide to the age of the bones in which it is found. Chloride of sodium is found in the blood. It is necessary to the life of human beings as well as all other animals. Its use is universal amongst mankind and they suffer from disease when deprived of it. Carbonate, sulphate, and phosphate of soda are other forms of sodium which are found in the blood and tissues of the human body. Chloride of potassium and the same salts as of sodium are also found in the body, but they are not so abundant as the latter. A still smaller quantity of magnesia than of the alkaline metals is constantly found as a constituent of the human body.

BODY, INFLUENCE OF MIND ON

See Mind, Influence of, on Body.

BODY, WATER IN THE

Water constitutes about three-fourths of the surface of the earth and the greater part of the bodies of men and other animals. The quantity of water entering into the composition of the human body is a good deal more than most people think. If we suppose a man to weigh eleven stones, it will usually be found that eight stones of this weight are nothing but water. In other words, a man weighing 154 lb. contains in his bones, his flesh, his blood, in his brain and his liver, and even in the fatty layers of his body, such a quantity of water that, when counted up into a grand total, it will amount to even 100 lb.; generally, in a healthy, well-grown man it will be no less than 104 lb., and may be as much as 112 lb. A small man, weighing about 100 lb., will contain about 70 lb. of water, perhaps rather more. Water is found everywhere in the body. By its agency all other substances are taken up into the system. All food must contain water; and it is only by being dissolved in the water that the other substances can be used as food. The quantities of water found in 100 lb. of different kinds of solid food have been given in the table under Foods, Water in.

BOIL OR STYE, ON EYELID

A stye on the eyelid (called, medically, *hordeolum*) is of the same nature as a boil, and frequently accompanies attacks of boils, and also acne. It is an inflammation in and around one or more of the Meibomian glands of the eyelid, which are modified sebaceous glands giving out a fatty secretion. They should also be taken as an evidence of ill-health, and never be considered as salutary or beneficial.

BOILS.

A boil is a small tumour common to every part of the surface of the body, hard, circumscribed, acutely tender to the touch, and suppurating, with a core in the centre. It is chiefly found in persons of a full habit and great vigour, but is sometimes met with also in debilitated patients, who are evidently suffering from ill-health.

BOILS AND FUNGI IN THE EAR

One of the most painful of ear diseases is an attack of boils in the auditory canal, usually at that point where the auricle passes into the canal. Not uncommonly these are caused by the irritation in the canal set up by the growth of a microscopic vegetable parasite, the fungus Aspergillus. In many cases, however, it is not easy to say whether the fungus excited the boil, or whether the small particles of matter from the boil have supplied the soil most likely to cause this parasitic plant to grow in the auditory canal. Be this as it may, the presence of this parasite in the ear excites a stubborn and intense inflammation in the organ, with earache and deafness. The usual recourse now is to pour oil and fatty matters into the ear, which, unfortunately for the patient, only feeds the fungus, causes it to grow with renewed vigour, and the patient becomes worse. Oils and fats should, as a rule, be kept from the ear ; and most positively they should never be used if this parasitic fungus has attacked it. After a boil in the ear, the ear should be very carefully syringed, in order to cleanse away all remnants of blood and matter, which might offer a soil for this fungus. The microscope alone is able to decide whether this minute vegetable is in the ear or not. Nearly all earache is attended with diminution of hearing. The only exception is neuralgic pain, arising from defective teeth.

BOILS, HOW TO TREAT

When a boil occurs in the strong and vigorous, some cooling, opening medicine should be given, and a common poultice be applied to the boil till it suppurates and breaks, when it may be fomented with boracic lint till it heals. If the ulcer gets into a chronic state, and wants stimulating in order to its healing, apply an ointment composed of two parts of spermaceti ointment, and one part of the ointment of nitrate of mercury. Boils not unfrequently arise in weakly habits, and where the constitution is evidently in an unhealthy state. In such cases an alterative pill given every night, or every other night, with an aperient pill occasionally, will be found of great service. The compound decoction of sarsaparilla is likewise an excellent medicine, and may be taken at the same time. It may be advisable to have the sanitation of the house overhauled, and it is essential that the system generally should be generously nourished. Quinine and iron is an excellent tonic.

BOILS ON GUMS

Gum-boils are sometimes limited to the substance of the gums, and sometimes connected with the decay of a tooth or socket. In the first variety it is a disease of only a few days' duration, and ceases almost as soon as the boil has burst or is opened ; in the second, it may continue troublesome till the carious tooth is extracted, or the carious socket has exfoliated, or the whole of its texture is absorbed.

BOILS ON GUMS, TREATMENT OF

Gum-boils when connected with an unhealthy condition of the subjacent teeth, rarely disperse without passing into suppuration, and it is, therefore, better to encourage this process by the use of warm fomentations, or cataplasms, than to repel it. An early opening of the tumour is of importance, as, from the structure of the parts concerned, the walls of the abscess are usually tough and thick, and the confined matter seldom obtains a natural exit with sufficient freedom. A little mild opening medicine every other day will be found useful and, after the abscess has burst or been opened, washing the mouth twice or thrice a day with an astringent lotion will tend materially to make the cure permanent. Twenty grains of sulphate of zinc, dissolved in half a pint of rose-water, will be a suitable lotion for this purpose.

BONES

The bones are the hardest and most solid parts of the human system, and are designed as a framework or foundation for the attachment and support of the softer parts. They also serve to give form and symmetry to the body and are useful for the purposes of motion and locomotion. When connected together in their natural order, they form what is called the skeleton. Like all other parts of the body, except the nails and hair, the bones are supplied with blood-vessels and nerves, and in their healthy state have little or no sensibility. But when in a state of inflammation they are extremely sensitive and painful. The bones are covered with a very firm, thin, and closely attached membrane, called the periosteum. When this membrane covers the skull or cranium, it is called pericranium. That bones are provided with blood-vessels is shown by the fact that anatomists are able to trace these vessels into their substance, and to inject those of a young subject with wax so minutely as to make the bones appear of a lively red colour. The insensibility of the bones to pain when in a state of health is a providential arrangement. Surrounded as they are by the softer and more sensitive parts, these afford them ample protection, while their insensibility enables them to act, for any length of time, without weariness or pain. But when a severe accident occurs to break them asunder, or destroy their texture, pain then becomes their kindest guardian and the surest promoter of their recovery. In such circumstances, indeed, nothing can be more truly benevolent than pain. It accompanies that inflammation and vascular activity without which the work of reunion of the broken part cannot be accomplished ; and is the means of securing the repose and quietude which are essential to their exact adaptation of the parts to each other, and which can be effected only by causing excessive pain to follow even the slightest motion. Of such utility is inflammation on these occasions, that when, as sometimes happens, the requisite degree of it, from want of nervous sensibility in the part, does not take place, and the bone remains ununited for many weeks, surgeons are in the habit of using violence to produce the necessary stimulus. In this case they either rub the broken ends rudely against each other, or introduce an instrument between them, by which pain and irritation may be excited ; and reunion is accomplished. On the other hand, if pain did not guard the limb from motion when the process of recovery is going on, the union would be incessantly disturbed by every heedless and unavoidable start altering the relative position of the parts. This, also, is occasionally exemplified in practice. Looking at these facts, it is impossible not to admire the wisdom and the benevolence manifested in the adaptation of the structure of bones in every particular to the circumstances and occurrences of life.

BONES, CHANGE IN

There is a gradual but constant change going on in the bones of all living persons. They increase in size, the proportion of the animal matter decreasing as we advance in years, till, in extreme old age, the earthy substance so preponderates that the bones are very brittle and easily broken. The growth of a bone, as a general rule, takes place only by addition to its free ends and surfaces. Any part of the system condemned to inaction loses in power ; and this rule holds good in an especial manner even with the hard and apparently unalterable fabric of the bones. It is ascertained by extensive experience that complete inaction, besides diminishing the size of bone, injures its structure so much as to deprive it of hardness, and render it susceptible of being cut with a knife. Now, what is strongly marked in an extreme case is not less active, although it may be less palpably apparent, in cases where there is great, though not total deprivation of exercise ; and herein is one cause of the bad health, crooked spines, and deformed figures whose foundation is to be traced generally to the habitual restraint and regulation of attitude imposed in modern education : evils which could never stand for a moment before knowledge or reason. The bones are the solid framework of the body ; and unless they be duly exercised in actual motion, they, like the muscles which move them, suffer and decay, in virtue of that universal law which requires the exercise of voluntary organs as the condition of their well-being, as the stimulus necessary to their efficient existence.

BONES, CLASSIFICATION OF

The bones are divided into four classes, known as Long, Short, Flat, and Irregular.

(1) The long bones are those which exist in the limbs, and are employed in locomotion. Their characteristics are that they consist of a shaft and two articular extremities ; these extremities being covered with what is termed articular cartilage, and being capable of mutual movement upon each other by one or another form of joint, the gliding movement of such joints being assisted by the presence of bags containing joint oil (synovia), which are placed between these articular cartilages. The shaft of a long bone is cylindrical, or nearly so, and its extremities are expanded. The shaft consists of a compact tissue, whilst the extremities are composed of spongy tissue, having a layer of compact tissue coated over them. The long bones are the cubit, the two bones of the forearm, the thigh bone, the shin and splint bones, the bones of the finger and toe, and the collar-bone.

(2) The short bones are compact, strong bones, having several articular surfaces for mutual adaptation, and are found in those parts of the body where strength and limited motion are required, such as the wrist and the bones of the ankle and instep. They consist of spongy tissue, with a coating of compact structure.

(3) The flat bones afford broad flat surfaces for the attachment of muscles, and for the protection of cavities ; they consist of two layers of compact tissue, containing a layer of spongy tissue between them. They are the skull bones, blade bones, haunch bones, breast bones, and ribs.

(4) Irregular bones are those which, as their names would suggest, cannot be grouped with those previously named, such as the spine, jaw bones, and several of the bones which make up the skull.

BONES, COMPOSITION OF

The bones are composed of both earthy and animal matter. The earthy portion, which is mainly the carbonate and phosphate of lime, gives them their solidity and strength; while the animal portion, which is mostly gelatine, gives them vitality and prevents them from being too brittle. In children, while the bones are soft, these two substances are nearly equal; but in adults there is a much larger proportion of the earthy than of the animal matter in the bones. In the disease called rickets the earthy matter of the bones has been more or less absorbed, leaving them soft and flexible.

BONES, FAT IN

Bones contain considerable fat and nitrogenous matter. It has been estimated that six pounds of bones boiled for one hour are equal to one pound of meat in nitrogen, and to nearly two pounds in carbon.

BOOTS AND SHOES

Boots and shoes should have broad low heels and be loose enough to avoid corns (which are almost always the result of trying to wear too narrow soles and too high heels), and yet not so loose as to give rise to excoriation from friction upon projecting portions of the foot. Neglect of this latter precaution sometimes gives rise to troublesome and intractable sores. Wearing goloshes or indiarubber shoes in rainy or especially snowy weather is probably the best method of avoiding the dangers of wet feet, but the practice has great disadvantages and is only a choice of evils. The ill effects of rubber coverings for the feet may be reduced by being scrupulously careful to wear them only while walking or using active exercise and taking them off as soon as we sit down or enter the house. Waterproof boots and shoes have no special advantages over rubber overshoes, and labour under the very great disadvantage that they are much less apt to be taken off as soon as the urgent necessity for their use ceases. The shape of the boot should be suited to that of the foot as set down on the ground, when the individual partly rests on it: the sole should be broad, and the heel on a level with the sole. What is called the fashionable boot is little better than an instrument of torture. It is not always clear that the maker is to blame for these monstrosities: too often he is simply acting under orders. Were this not so, then it would follow that many a boot, and shoe-maker never studied the human foot in his life, else it would be simply impossible to devise the shocking travesty that is supposed to act as a covering and support to one of the most elegantly-formed parts of the human frame. There is no justification in nature (nor, be it said incidentally, in art, though were this otherwise the consideration would be valueless) either for the high heel or the pointed toe. A boot-maker, ambitious to do a fine business would be well advised to commission a sculptor to model a normal last, the dimensions of which it would easily be possible to modify to meet the cases of customers whose feet showed any deviation from the average configuration. Thin-soled shoes should be altogether discarded as articles of dress. They ought only to be used for the purpose of dancing, and then only while dancing. The invalid or dyspeptic ought assuredly never to wear thin shoes at other times. When wearing shoes of a moderate thickness of sole, it is a good plan to insert a thin layer of cork or felt within the shoe, over the sole or next to the foot. Cork is a very bad conductor of heat, and is therefore to be preferred ; if it is not to be had, or is not liked, felt may be substituted for it.

BOWELS, SUFFICIENT ACTION OF

The amount digested and passed off daily from the bowels depends on the amount the person usually eats the day before. Day-labourers pass thrice as much as the delicate and sedentary, because they require more food. It is easier and more correct to form an estimate of what is a sufficient action of the bowels by the quality rather than the quantity, and that quality is determined by the relative consistency or solidity of the excreta. If a person has every day a dejection which is in hard round balls, inclined to black, that person is constipated ; but if the dejections occur only once in forty-eight hours, and are of the consistence of mason's mortar as he throws it from his trowel to spread it on the wall, such a person is not costive. What first passes out is usually harder, and the last softer ; but if altogether the dejections are barely stiff enough to maintain their cylindrical shape, that is a healthy action, and there is no constipation, in effect, even if there be but one such passage in forty-eight hours. The ordinary healthy colour of a dejection is a rich light brown, inclining to yellow.

BRAIN

The chief nerve mass in man or animals, enclosed in the skull, and serving as the great starting-point from which the spinal marrow and all the nerves that permeate the body proceed. It is divided into the cerebrum or brain, the cerebellum, or little brain, the medulla oblongata, or the continuation of the spinal cord within the skull, and the ganglia of the special senses. These parts of the brain are described under their several headings.

BRAIN AND NERVE STRUCTURE, DETERIORATION OF

Sometimes simultaneously with, sometimes preceding or succeeding, at some little interval, failures in the muscular tissues, are seen the evidences of deterioration of brain and nerve structure displayed in the loss of intellectual power, with changes of temper and even of disposition. Such alterations are slow ; they often begin insidiously and develop almost imperceptibly, escaping the attention of the subject of them for the simple reason that they affect the organ of perception of external impressions itself. Very frequently they are distinctly visible to a close observer long before the state of dotage is recognizable by the ordinary eye. There is no doubt that, in these circumstances, life and intellectual vigour would often be prolonged by a judicious change of occupation and scene, particularly by foreign travel ; and marked failure of memory, loss of reasoning power, or capacity for mental application, are the symptoms which should warn elderly persons of the approach of intellectual decay, which, however, the means just suggested may avert, or at least for a long time postpone. Should these danger-signals be disregarded, as is the case in a large majority of instances, the time when they can be of service is apt to pass quickly by, and the perchance once vigorous intellect, wrecked and ruined, falls into a condition of decay which renders long life a grievous burden, not only to the sufferer himself, but also to the loving relatives and anxious friends who surround him.

BRAIN AND SLEEP

What part of us really sleeps during the time when we are said to be asleep has long been a problem to which scientists have offered many different solutions. We all know that the muscles of the heart and the chest will continue to do their work when we are asleep just as when we are awake, and the phenomena of talking in one's sleep and somnambulism show that more general muscular action may go on and the person still continue in a state of sleep. We thus reach the conclusion that during sleep nothing is asleep within us except the brain, but even the brain, as Mrs. De Manaceine has pointed out, is not wholly asleep, but only some of its elements. Necessary as sleep is, and restful as it is in its effects, there is no doubt that sleep does not mean a complete cessation of brain activity. So far from being a mere negation of mental activity, sleep represents a separate existence from that of which we are conscious in our waking moments. To quote Byron—

> "Our life is two-fold; sleep has its own world,
> A boundary between the things misnamed
> Death and Existence: sleep has its own world."

It would seem, therefore, as Mrs. De Manaceine says, that in the psychic life of sleep we are brought into a vaguer and larger world than we are conscious of during waking life, the world of our once-forgotten past, and the world, it may be also, of the forgotten past of the race. It is in that, perhaps, that the charm of dreams largely lies. In the hereditary transmission of the characters of the physical and psychic organism nothing is lost. The forms which thought takes are organic and transmitted by heredity. Even characteristic gestures, special and peculiar traits, the characteristics of the handwriting, of thought itself, are transmitted from one generation to another. They are certainly transmitted unconsciously. But we may perhaps dare to glance into a dim future when consciousness will have so vastly developed that it may reach back to embrace all that our ancestors felt and lived and have handed on to us as an organic patrimony.

BRAIN, CONCUSSION OF THE

See Concussion of the Brain.

BRAIN, FUNCTIONS OF ORGANS MODIFIED BY

Changes in the quality or amount of the nervous influence transmitted from the brain to any organ have a direct power of modifying its function. If, from a peculiar state of the brain, the nervous influence sent to the stomach be impaired, the tone of that organ will be also impaired, and digestion become imperfect; whereas if, in consequence of pleasing excitement, the nervous stimulus be increased, a corresponding activity will be communicated to the stomach, and digestion will be facilitated, as is experienced after a dinner in pleasant society. But if, by a violent burst of passion, or grief, the brain be inordinately and disagreeably excited, so as to send forth a stimulus vitiated in quality, the stomach which receives it will partake in the disorder. Hence the sudden loathing and sickness so often induced by unexpected bad news, vexation, or alarm. Something analogous to this is still more visibly exhibited in the case of the muscles. If the mind be active and decided, the muscles, receiving a strong stimulus, move with readiness and force; but if the cerebral activity be impaired by bilious depression, muscular action becomes slow, infirm, and indolent; whereas if the brain be excited by strong passion, and the stimulus be impetuous, the movements instantly become energetic and decided; and, if the excitement be carried still further, the regulated muscular contraction passes the limits of health, and becomes involuntary and convulsive. As the quality of the nervous influence depends on the condition of the brain, that which springs from a brain of which all the parts are in sound and vigorous action is the best. Mental indolence and high mental excitement are alike inimical to bodily health; and consequently our great aim ought to be to secure for every mental power, moral as well as intellectual, that equal and regular exercise from which alone the proper nervous stimulus can spring.

BRAIN, ON SIZE AND WEIGHT OF

The human brain is absolutely bigger and heavier than the brain of any animal, except those of the elephant and the larger whales. It is also heavier relatively to the bulk and weight of the body than are the brains of the lower animals, except in some small birds and mammals. Considerable variations, however, exist in the size and weight of the human brain, not only in the different races of mankind, but in individuals of the same race and in the two sexes. The heaviest brains occur in the white races. The average weight of the adult European male brain is 49 to 50 oz., that of the adult female 44 to 45 oz., so that the brain of man is, on the average, fully 10 per cent. heavier than that of woman. The greater weight of the brain in man as compared with woman is not in relation merely to his greater bulk, but is a fundamental sexual distinction; for whilst there is a difference of 10 per cent. in the brain weight, the average stature of woman is, as Thurnam has calculated, only 8 per cent. less than that of man. The average weight of the brain in the newly born male infant is 11·67 oz., in the female only 10 oz. The exact age at which the brain reaches its maximum size has been variously placed at from the third to the eighth year by different authors; but it continues to increase in weight to 25 or 30, or even 40. After 60 the brain begins to diminish in weight; in aged males the average weight is about 45 oz., in females about 41 oz. In some cases the adult brain considerably exceeds the average weight. The brains of several men distinguished for their intellectual attainments have been weighed: the brain of Cuvier weighed 64½ oz.; of Dr. Abercromby, 63 oz.; of Professor Goodsir 57½ oz.; of Spurzheim, 55 oz.; of Sir J. Y. Simpson, 54 oz.; of Agassiz, 53·4 oz.; and of Dr. Chalmers, 53 oz. But high brain weights have also been found where there was no evidence of intellectual capacity: they have been noticed even among the insane.

BRAIN POWER, EXHAUSTION OF

See Warnings of Nature.

BRANDY

the alcoholic or spirituous portion of wine, separated from the aqueous part, the colouring matter, etc., by distillation. The word is of German origin and in its German form, *Branntwein*, signifies burnt wine, or wine that has undergone the action of fire. Brandies, so called, however, have been made from potatoes, carrots, beetroot, pears, and other vegetable substances; but they are all inferior to true brandy and their sale under the designation of brandy has, in the United Kingdom, been held to be illegal. Brandy is prepared in most wine countries, but that of France is the most esteemed. It is procured not only by distilling the wine itself, but also by fermenting and distilling the *marc*, or residue of the pressings of the grapes. It is procured indifferently from red or white wine, and different wines yield very different proportions of it, the strongest, of course, giving the largest quantity. Brandy obtained from *marc* has a more acrid taste than that from wine. The celebrated brandy from Cognac, a town in the department of Charente, and that brought from Andraye, seem to owe their excellence to being made from white wine. Like other spirit, brandy is colourless when recently distilled; by mere keeping, however (owing probably to some change in the soluble matter contained in it), it acquires a slight colour, which is much increased by keeping in casks, and is made of the required intensity by the addition of burnt sugar or other colouring matter. What is called British brandy is not, in fact, brandy, which is the name, as we have said, of a spirit distilled from wine; but is a spirit made chiefly from malt spirit, with the addition of mineral acids and various flavouring ingredients, the exact composition being kept secret. The brandies imported into England are chiefly from Bordeaux, Rochelle, and Cognac. "A good sample of true cognac," says Professor Church, "of pale colour, was found to contain 136 grs. of solid dissolved substances per imperial pint, 74 grs. being sugar. It was of proof strength, but is usually sold at 15 under proof. A fair sample of dark-brown 'British brandy' was found to contain 61½ grs. of solid fixed matter per pint, 18¼ grs. being sugar. Its strength was 17 under proof." Genuine brandy improves in flavour by being kept. It is of great value in the sick-room as a cardiac stimulant. For this reason its use as an ordinary drink, whether with or without the customary soda, is much to be condemned, since its action on the heart largely depends upon the fact that the system has not become habituated to its effect. It is notorious that a small quantity of brandy has at once a beneficial influence, used solely for medical purposes, upon a person who has not grown accustomed to it as a beverage. In the case of a brandy tippler, he would have to consume such a large quantity before the desired heart action was obtained, that practically the spirit is useless with all such patients. Therefore brandy should be strictly reserved for the sick-room.

BREAD

Among civilized people bread has become an article of food of the first necessity: and properly so, for it constitutes of itself almost a complete life-sustainer, the gluten, starch and sugar which it contains representing azotized and hydro-carbonated nutrients, and combining the sustaining powers of the animal and vegetable kingdoms in one product. Bread-making is a very ancient art indeed. The Assyrians, Egyptians, and Greeks used to make bread, in which oil, with aniseed and other spices, was an element ; but this was unleavened. Every family used to prepare the bread for its own consumption, the trade of baking not having yet taken shape. It is said that somewhere about the beginning of the thirtieth Olympiad, the slave of an archon, at Athens, made leavened bread by accident. He had left some wheaten dough in an earthen pan, and forgotten it ; some days afterwards he lighted upon it again, and found it turning sour. His first thought was to throw it away ; but his master coming up, he mixed this dough, now becoming acid, with some fresh dough, which he was working at. The bread thus produced, by the introduction of dough in which alcoholic fermentation had begun, was found delicious by the archon and his friends, and the slave, being summoned and catechized, told the secret. It spread all over Athens ; and everybody wanting leavened bread at once, certain persons set up as bread-makers, or bakers. In a short time bread-making became quite an art, and " Athenian bread " was quoted all over Greece as the best bread, just as the honey of Hymetus was celebrated as the best honey. The finest, wholesomest, and most savoury bread is made from wheaten flour. There are of wheat three leading qualities —the soft, the medium, and the hard wheat ; the last of which yields a kind of bread that is not so white as that made of soft wheat, but richer in gluten, and consequently more nutritive. Rye bread comes next to wheaten bread ; but it is not so rich in gluten ; it is said, however, to keep fresh longer, and to have some laxative qualities. Bread made from barley, maize, oats, rice, potatoes, etc., " rises " badly, because the grains in question contain but little gluten, which makes the bread heavy, close in texture, and difficult of digestion ; in fact, corn-flour has to be added before panification can take place. In countries where wheat is scarce and maize abundant, the people make the latter a chief article of sustenance when prepared in different forms.

BREAD, AËRATED
See AËRATED BREAD.

BREAD, BROWN
See BROWN BREAD.

BREAD, CHEMICAL COMPOSITION OF

The chemical composition of bread is thus explained by Professor James F. W. Johnston : " The quantity of water which well-baked wheaten bread contains amounts on an average to about forty-five per cent. The bread we eat, therefore, is nearly one-half water—it is, in fact, both meat and drink in one. The flour of wheat and other kinds of grain contains water naturally ; but it absorbs much more during the process of conversion into bread. One hundred pounds of fine wheaten flour take up fifty pounds, or half their weight of water, and give a hundred and fifty pounds of bread. Thus, a hundred pounds of English flour and a hundred and fifty pounds of bread contain respectively—

	The flour contains lb.	The bread contains lb.
Dry flour . .	84	84
Natural water .	16	16
Water added .		50
	100	150

One of the reasons why bread retains so much water is, that during the baking a portion of the starch is converted into gum, which holds water more strongly than starch does. A second is that the gluten of flour, when once thoroughly wet, is very difficult to dry again, and that it forms a tenacious coating round every little hollow cell in the bread, which coating does not readily allow the gas contained in the cell to escape or the water to dry up and pass off in vapour ; and a third reason is that the dry crust which forms round the bread in baking, is nearly impervious to water, and like the skin of a potato which we bake in the oven or in the hot cinders, prevents the moisture from escaping." The proportions of water, gluten, and starch or gum, in well-baked wheaten bread, are nearly as follows :—

Water	45
Gluten	6
Starch, sugar and gum	49
	100

BREAD POULTICE

See Poultices.

BREAKFAST

After the long fast of the night a healthy person is eager for food as soon as he awakes in the morning. He should, therefore, wait no longer for his breakfast than during the time necessary to perform his ablutions and perfect his toilet. The activity required for these simple operations affords quite sufficient exercise for most people before taking their first meal. The brisk constitutional walk—as it is termed—on an empty stomach, at break of day, is of no advantage to any one. The most vigorous man may possibly endure it, but the less robust will be sure to suffer from it. The breakfast need never be a very elaborate meal. The morning appetite, however eager, has so much the unsophisticated character of natural hunger, that it craves for simple food. The breakfast should be always composed of light and easily digested food. A little coffee and a great deal of milk, with a free supply of well-baked bread, or such substitute for it as oatmeal porridge, or other articles of a farinaceous kind, are all that are required for the most vigorous people.

BREAKFAST, THE DEWEY THEORY OF

Dr. Dewey, an American physician, was once confronted with one of those unexpected questions on a daily and therefore familiar subject that baffle an immediate answer. It suddenly flashed across his mind as remarkable that sleep should be a hunger-causing process. Nor could he satisfy himself that such was the case. Admitting that digestion might go on during sleep, it was nevertheless performed at a greatly reduced rate. From this standpoint he concluded that the orthodox breakfast was not only unscientific but physiologically harmful. The desire for a meal in the morning was merely, he contended, the result of habit. Accordingly he gave up the heavy breakfast to which he had hitherto been accustomed and partook only of the slight morning repast of the French. This he ultimately came to think was an act of compromise for which he could plead no justification and he abandoned even this slight refreshment, taking no meal in the day, until Nature herself imperiously called for food. Thus he came to break his fast at noon and took his next meal in the evening. It is probable that the real solution of the question of breakfast lies between the extremes of the substantially English morning meal, and the no meal of Dr. Dewey till 12 or 1 o'clock, and is to be found in the French practice of indulging only in coffee, rolls and butter in the morning, followed by *déjeuner* or lunch about noon and dinner any time between 6 and 8, with perhaps afternoon tea at 4. Thus the French accustom themselves to only two serious meals a day, merely taking the edge off the appetite in the morning and afternoon. People might be induced to follow the French lead, could they but be sure of getting habitually such coffee, rolls and butter as one gets in the Parisian hotel in the morning.

BREAST-PANG

See ANGINA PECTORIS.

BREASTS

The breasts are composed of the common integuments, adipose tissue, and the lacteal glands and vessels. In the centre of each breast is the nipple, a conical eminence in the skin, of a rosy tint, and surrounded by a circle of a pink colour in virgins, and reddish brown in those who have suckled ; this circle is called the areola, and on it are several small prominences, caused by the sebaceous glands which are situated beneath it and discharge through several small ducts, opening on the surface, an unctuous fluid to protect the nipple. On the wrinkled skin of the nipple are the orifices of the lactiferous or milk-conveying ducts, which are surrounded by very minute hairs. The mammary gland for secreting the milk is of a complex arrangement, several exceedingly minute vesicles being collected into little bundles of the size of a pin's head ; these little bundles again uniting into lobules and then again into lobes, connected together by areolar tissue. Each little bundle of vesicles has its minute tubular duct or radicle, and these unite in the lobules into larger ducts, and in the lobes into the main ducts. The whole lobe is somewhat like a bunch of grapes, the stalks being supposed to be hollow. The ducts from the several lobes do not unite, but open into several small sinuses, or hollows, near the base of the nipple, from which sinuses several unconnected ducts pass up its centre and, opening upon its surface, there discharge the milk. The areolar tissue enveloping the lobes is generally filled with fat. The breasts are, of course, supplied with nerves, arteries, and veins ; the lymphatics are very numerous and go to the axillary glands.

BREATH, OFFENSIVE

may arise from neglect of the toothbrush (which should be employed every morning, if not after every meal), from decayed teeth, sore throat, indigestion, constipation, diseases of the nose and alcoholism. It may also be symptomatic of mortification of the lung, diabetes, uræmia and other grave troubles. The use of a mouth-wash (such as boracic acid, 15 grains ; tincture of myrrh, 15 drops ; compound tincture of lavender, 15 drops ; rectified spirit, 10 drops ; water to an ounce. Mix with warm water and wash) for several days and the habitual use of the tooth-brush will remedy the foul breath that proceeds from want of cleanliness. A mild gargle of permanganate of potash or sulphurous acid will be useful in sore throat, and charcoal biscuits if the stomach be disordered. The tobacco-smoker may use a perfumed cachou or peppermint lozenge. The tippler must give up intoxicants wholly. When symptomatic, the breath will not cease to bear a distinctive odour until the prime disease itself has been cured.

BREATHING

George Catlin (1796–1872), the artist and ethnologist who spent many years in travelling amongst the Red men, wrote a remarkable book which he entitled *Shut your Mouth and Save Your Life.* In it he told how he had discovered, during long intercourse with the Indians of the North American continent, that one of the leading causes of the many maladies by which men of all civilized countries are affected is their well-nigh unconquerable habit of breathing through the mouth. The Indian child, he noticed, was never allowed to sleep with its mouth open. Its savage mother, as her infant fell asleep, never failed to press its lips together, till she had formed a habit that was to last for life, and when the child grew up, sleeping or waking, he kept his mouth shut. Thus it happened, according to Catlin, that the native races of North and South America enjoyed such good health, arrived at such physical perfection, and escaped the deplorable diseases and mortality of civilized communities. Amongst many thousands of wild people he never saw or heard of a hunchback or crooked spine, or an idiot or lunatic, whilst premature death was decidedly uncommon. It is quite evident that the nostrils are made for breathing through. They constitute the natural outlet of the lungs. The sides of the air-passages are lined with hairs, which in some degree at least prevent the ingress of noxious matters in the air we breathe. Dust is strained out, and it is confidently asserted by those who have tested the matter, that miasma is prevented from entering the blood if one only breathes through the nose. Some persons have resided in malarial districts, and slept for years on the banks of malarial rivers, without suffering from any of the forms of fever that haunt such neighbourhoods. And they have ascribed their exemption entirely to their settled habit of breathing in this way. All, or almost all, the air taken thus into the lungs comes in contact with the membranes of the nose, and these are supposed to have some power of neutralising malarial and contagious poisons. These views, however, are not borne out by scientific research, since Sir Patrick Manson has demonstrated that malaria is due to mosquito-bite. Nevertheless, it is certainly desirable that the mouth should be kept closed in malarial districts and all other districts. It is also to be noticed that, by drawing in our breath only through the nostrils, the air is warmed by contact with the membranes before it reaches the lungs, and so inflammation and congestion of these organs are avoided. No perfect sleep can be obtained with the mouth open. "Contrast," says Catlin, "the natural repose of the Indian child, educated to keep its lips closed, with the uncomfortable slumbers of the child of civilization, with its little mouth wide open and gasping for breath. The firmly shut mouth, too, promotes good looks. Whoever yet saw an open mouth that was not insipid and unattractive? Keep your mouth shut, then, when you read, when you write, when you listen, when you are in pain, when you are walking, when you are running, and by all means when you are angry." All crooked or constrained bodily positions affect respiration injuriously. Reading, writing, sitting, standing, speaking, and working with the trunk of the body bent forward are extremely hurtful by overstretching the muscles of the back, compressing the lungs, and pushing downwards and backwards the stomach, bowels, and abdominal muscles. *See also* RESPIRATION.

BRINGING UP BY HAND

When, from whatever cause, the mother is unable to nurse her child, and when, as frequently happens, especially among the working-classes and the poor, the services of a wet-nurse cannot be had recourse to, nothing remains but that the infant be brought up artificially, or, as it is called, "by the hand." As, however, of the three methods by which the child may be brought up, namely, nursing by the mother herself, nursing by means of a wet-nurse, and nursing by hand, which we are now considering—this last, or bringing up by the hand, is the most difficult of all to accomplish satisfactorily ; it is under this system that so many children die, and this it is which in large cities, is the cause of a great amount of the infant mortality which occurs there.

(1) **Substitute for Human Milk.**—It will naturally arise in the mind of every mother who intends thus to rear her child to inquire what food will be best suited to take the place of the human breast-milk. To this question the answer is, that there are three kinds of milk, any one of which may serve as an efficient substitute for mother's milk. These are the milk of the ass, the milk of the goat, and that of the cow—their adaptability being in the order in which they are here given. But although the milk of the ass, from its great resemblance to human milk, is that which is most suited to serve as its substitute, owing to the difficulty there is to procure it and its great expense, it is put beyond the range of many and cannot in consequence ever be of more than the most limited application.

(2) **Cow's Milk.**—Something, therefore, that can be more universally employed must be employed, and a substitute of this nature is to be found in cow's milk. It is at once the cheapest substitute that can be had and that which comes within readiest access of all. The milk of the goat, like that of the ass, is sometimes used ; but there are many reasons in the case of the former of a similar nature as those we saw to exist in regard to the latter, which preclude the possibility of its ever being of general application. Cow's milk, therefore, is that to which we naturally direct attention, and a glance at its composition enables us to see how eminently it is fitted to act as a substitute for the milk of the human breast. In order, however, that the milk of the cow be brought to resemble human milk as nearly as possible, certain alterations require to be made, inasmuch as the milk of the cow contains more caseine and less butter and sugar than that of the human breast. A certain proportion of water must therefore be added, varying with the age of the child, and also a little sugar.

(3) **Dilution of Milk.**—At the present time it is frequently very difficult in many of our large cities to obtain milk that has not been already adulterated with water, chalk, flour, and other things, so that in diluting the milk to render it fit for the infant, the possibility of

its being already sufficiently diluted must not be forgotten. Till lately it was too much the practice to over-dilute the milk, so that the health of many infants was impaired through the habitual use of a liquid, the nutrient quality of which had been seriously diminished.

(4) **Proportions of Milk and Water for first ten Days.**—For the first ten days or so equal parts of milk and water may be given, after which, till about the third month, the proportion should be two-thirds milk and one-third water, the proportion of water should then be gradually diminished, until the fourth or fifth month, when pure milk undiluted should be given. It is necessary that the milk given to the child be not given cold.

(5) **Temperature.**—It should have the temperature raised so as to resemble as nearly as possible the milk of the human breast. For this purpose hot water is added to the milk when it is given to the infant in a diluted form, or when given pure it must be placed in boiling water till the temperature is raised to about 96° F., which is the temperature of the human breast-milk. The milk should, if it can possibly be so arranged, be from one cow. It not unfrequently happens that the milk of a certain dairy disagrees with the child, and when such is the case, different dairies must be tried until one has been got the milk of which agrees with the child, when it should not be readily given up.

(6) **Quantity.**—The quantity given at a time is a point of very great importance, and requires to be carefully attended to in order to the success of this plan of feeding. Many parents disregarding this, or ignorant of the important part it plays in the artificial rearing of children, err by giving their infants too much at a time.

(7) **Intervals between Meals.**—A regular method of feeding should therefore be practised from the first, and a sufficient interval must be allowed to elapse between one meal and another, in order that the act of digestion may be completed.

(8) **Intervals for and after First Month.**—For the first month the child may be fed every two hours during the day, and every four hours during the night. From this time onwards the child should be fed at regular intervals of every three hours. Many mothers are under the impression that in milk there is not sufficient nourishment to support the child; and, acting upon this mistaken idea, derange the infant's stomach by giving it solid food, such as biscuit and bread panada. This ought never to be done. There is in milk all those elements required to build up the tissues of the infant; and children that have been given nothing else till the teeth have appeared will in all probability be found in a much more healthy condition of body than those whose stomachs have been overtaxed by the administration of more solid food.

(9) **Methods of Feeding.**—There are two methods which may be employed in this artificial system of feeding—the one is to give the infant its meals from a spoon, the other is to allow it to suck from a bottle. The first of these two methods is one which is seldom employed, and against which there are serious objections: thus, the feeding of the child may be hurried through the carelessness of the nurse, and it is well known that the flow of saliva is much greater during the act of sucking than it is when spoon-feeding is adopted, and as saliva is a very important aid to

digestion, its loss cannot be sustained without ultimate injury to the child. The feeding-bottle should therefore be adopted from the first, and the child be allowed to take its meals regularly in this way.

(10) **Feeding-Bottle.**—The variety of bottles is so great, and each one is said to have some advantage over the other, that it is difficult to say which is best. Preference had better be given to the "slipper" shape, that is, the bottle in which a tube is dispensed with. But whatever bottle may be selected, one thing is absolutely necessary in regard to it, and that is that it be kept scrupulously clean. Too much attention cannot be paid to this. A bottle that is not kept in the most perfect state of cleanliness may be, and frequently is, productive of the white-mouth, the so-called "thrush," from which children, especially those that are thus brought up, are so liable to suffer. Every effort should therefore be made to prevent the occurrence of this affection. The simplest and most effectual plan is to have two bottles in use, of which one may be kept sweet by lying in cold water till required. Thus one bottle will always be wholesome when wanted.

(11) **Food to be freshly made.**—No more food should be made than what will serve for one time. To make a large quantity, sufficient to serve the infant for two or three meals, on the ground that time and trouble are thereby saved, must never be permitted on any consideration whatever. Each quantity must be made freshly as it is wanted, and by attending to this much will be done to keep the infant in a sound state of health.

(12) **Food for Child when Teething.**—When the teeth begin to appear, which is usually about the sixth or seventh month, the diet will require some alteration; but if the child be thriving well upon the milk alone, there should not be displayed too great a hurry to make a change. When, however, it is determined to supplement the infant's diet by the administration of articles of a more solid nature, a great many suitable for this purpose present themselves. Rusks, tops and bottoms are alone sufficient, but the medical fraternity often recommend one of the patent foods now so extensively advertised, and many of these are indeed good. It would, however, be invidious to single out any one for special mention, and indeed two or three of these may require to be tried in succession before one is got which suits the child in every way; but when that one has been found, its use should not be readily abandoned for experimentation with others.

(13) **Further changes of Diet.**—When the larger double teeth make their appearance, it is regarded as a sign that a further change in the diet is now become necessary, and that the child has attained to that age when it is able to partake of animal food of one kind or another. Milk should yet, however, form a large part of every child's food; but, in addition, some beef-tea, chicken-tea, or mutton-broth, may be given once a day in the forenoon. As a change, a little meat gravy, with a mealy potato mashed up in it, may be given. An egg, lightly boiled, or one that has been placed for two minutes in boiling water, forms a very useful article of diet for young children, and one that is very nourishing. As before said, milk should still form a very large part of the child's diet. A little ripe fruit will not prove hurtful to most children at this age, and so

may be given sparingly, care being taken to remove all stones. Nuts and other husk fruits, which are difficult of digestion, should be avoided. They may derange the child's stomach, and had better, on that account, be withheld altogether.

(14) **Ailments during Teething.**—During this time the teeth will be every now and then appearing, and may give rise to different degrees of irritation ; some children cutting their teeth without almost any trouble, and others suffering much with the appearance of every new tooth. Attention must, therefore, during the whole of this period, be paid to the state of the stomach and bowels ; and if the child should suffer from diarrhœa, some slight alteration in the diet should be made, as it is always better, if it can possibly be accomplished, to remove diarrhœa in this way than to have recourse to medicines.

(15) **Treatment of Diarrhœa.**—For this purpose a little arrowroot may be given—first with milk, and if that do not serve to check the diarrhœa, with water. This may be given for a day or two, during which time all animal food should be discontinued. The cream of milk may also be used instead of the milk itself. A little lime-water may also be added with advantage to the milk or cream. The proportion should be one table-spoonful of lime-water to three of milk or cream. If the diarrhœa is severe and continuous all milk must temporarily be discontinued (*see* CHOLERA INFANTUM).

(16) **Treatment for Constipation.**—Instead of diarrhœa occurring during the period of teething, the child may suffer from constipation. A little calcined magnesia will be found a very safe medicine to administer should this prove at all troublesome. A small quantity should be lifted upon the small end of a teaspoon and added to the milk which is being given to the child. Ripe fruit should also be given, as it exercises a laxative influence upon the bowels.

BRITISH CHOLERA

See CHOLERA MORBUS.

BRONCHITIS

The ailment known by this name is an inflammatory disease of the lining membrane of the bronchial tubes. It may be acute or chronic.

BRONCHITIS, SYMPTOMS OF

Acute bronchitis is very liable to attack persons in the winter, and at times when the east or north-east winds are prevalent. It begins with the symptoms of a common cold ; then there is first a feeling of chilliness and aching pains in the limbs ; the patient is thirsty and feverish, with languor and headache, loss of appetite and restlessness. There is an uneasy feeling of soreness behind the sternum or breast-bone, increased on taking a deep inspiration, or on going out into the cold air. At first there is a dry, hacking cough, and very little phlegm is brought up ; in two or three days the cough becomes looser and the expectoration is more abundant ; this is attended with relief to the patient, and the feeling of soreness and constriction in the chest then goes away. Wheezing sounds are heard in the air-passages, and may be felt when the hand is placed on the chest or back.

BRONCHITIS, TREATMENT OF

As soon as the patient feels ill, he should go to bed, and keep there till he is warm again ; in this way an attack may be checked in a few hours; the air should be warm, and for this purpose a fire may be lighted, and the temperature kept up between 60° and 63° F. There should also be a certain amount of moisture in the air, and to effect this a kettle of boiling water may be placed on the fire and the steam allowed to pass into the apartment; this may be done two or three times a day, and for about ten or fifteen minutes at a time. A warm bath before going to bed is also a most useful remedy; but the patient should be well dried, and put to bed directly afterwards, so as to encourage free perspiration. Some are in the habit of taking a Turkish bath when they have an attack coming on; the only inconvenience in this procedure is the return home through the cold air afterwards. Unless symptoms of debility should be present, there is no call for the use of stimulants. The patient will not care to eat any solid food at first; bread-and-milk, rice pudding, or one made of arrowroot, tapioca or ground rice, broth, or beef-tea, or chicken-broth, and jellies may be given. As a rule, hot bland fluids are most enjoyed. A hot linseed-meal poultice may be placed on the chest, but removed when it becomes cold. To prevent the moisture from wetting the clothes, a piece of oiled calico or guttapercha tissue may be placed over the poultice. The patient should wear a flannel shirt next the skin. Cotton-wool laid on the chest is often as good as a poultice. Turpentine fomentations and mustard poultices may be useful should milder measures fail to give relief. Hot local applications, assisted by warm and moist air (for which a bronchitis kettle, the long spout of which throws the vapour well into the room, is indispensable), and a few domestic remedies, will often suffice to cure an attack of acute bronchitis; if, however, the disease be neglected in its early stage, and the patient be exposed to draughts and cold air, serious symptoms may arise.

BRONCHITIS, ACUTE, IN CHILDREN

Acute bronchitis in children is of much graver importance than in the adult, and a great deal of the mortality in childhood arises from this disease. In children the mischief is very apt to spread down the bronchial tubes, even to the smallest branches; while in the adult the main branches are, as a rule, the seat of the disorder; and it is in proportion to their downward extension that the relative danger lies.

In children this disease begins with the symptoms of an ordinary cold, but by degrees there is more fever and restlessness; the heat of the skin, as shown by the thermometer, is much above the average, the pulse rapid, the breathing quick and wheezing; the cough is now frequent and painful, and then the veins of the forehead and neck stand out, and the face is flushed. The child feels as if the chest were stuffed; and wheezing sounds may be felt on both sides when the hand is placed over the back or front of the chest. At bedtime, the fever and cough are generally worse, and the child is more restless. The tongue is moist throughout, the appetite bad, while there is more or less thirst. If the little patient becomes worse, the face may be pale while the lips are rather livid; the nostrils dilate with each inspiration, and the breathing is more hurried and difficult. Convulsions often precede a fatal termination; generally death takes place without much suffering, as the child passes gradually into a sleepy and unconscious state.

The treatment should begin as soon as possible, as any delay is dangerous. The child should be placed at once in bed, and wrapped in a flannel blanket or sheet, and the temperature of the room kept between 60° and 68° F. A warm bath may be given at the outset, so as to encourage the action of the skin; the child should then be quickly dried and placed in bed. Cotton-wool should be laid on the chest; a hot linseed-meal poultice may be similarly used; occasionally a little mustard may be mixed with the linseed meal. The bowels may be opened by a dose of castor oil. Expectorant medicines should be given, such as ipecacuanha and senega, so as to enable the patient to expel the mucus which is being poured out into the bronchial tubes. At the same time the strength must be carefully supported; milk should be freely given; if necessary, a few doses of brandy may be administered also. Beef-tea or veal-broth may be given alternately; solid food is not to be allowed. When all the severe symptoms have subsided, the patient may return gradually to a usual diet, and a change of air will often be of service.

BRONCHITIS, CHRONIC

This is a very common disease, and is very prevalent during winter months, causing a great deal of mortality. It is most usually met with in middle-aged or old people. Cough, shortness of breath, and expectoration, are the three most constant symptoms of chronic bronchitis. This disease may occur as a consequence of old age merely. Again, it may come on as a sequel to an attack of acute bronchitis. All whose occupation exposes them to all kinds of bad weather, are extremely subject to this disease, and every year they become more wheezy and short of breath. Those, too, who have suffered badly from whooping-cough, or lung affections in childhood, are liable to chronic bronchitis.

The best treatment for chronic bronchitis when it can be adopted is change of country, such as passing the winter in the South of France, or in some place where the variations of temperature are not marked and where there is an absence of fog and east wind. On the southern coast of England many suitable resorts will be found, especially on the English Channel shores of Cornwall and Devon, Bournemouth, and Ventnor. To the majority of people change of air may be impracticable and the treatment must, therefore, be directed to avoid as much as possible any exposure to cold or any of the exciting causes of the disease. For those who are engaged in outdoor occupations, and exposed to all the inclemency of the weather, but little can be done except to alleviate any distressing symptoms that may arise. Thick boots should be worn, so as to prevent damp and cold feet. Such people should go out after sunset as seldom as possible, and they should not talk in the open air on a cold day, but breathe through the nose, as in this way the air is somewhat warmed before it passes down the bronchial tubes: a respirator is often of great service. For those who are not obliged to work, much benefit will be found by only going out on fine days, and by avoidance of night air.

BRONCHO-PNEUMONIA

Broncho-pneumonia, or capillary bronchitis, as it is sometimes called, is an inflammation of the smaller bronchial tubes, and the air-cells connected with them. The majority of cases of pneumonia in young children are of this form, and it is also very common among old people. It is principally a disease of the poorer classes. It generally occurs as a secondary disease following on some other morbid condition, thus it is a common sequence of measles, whooping-cough, and influenza. It is one of the principal causes of death among young children in large cities. The disease generally begins suddenly with a chill. In the course of a day or two the breathing becomes short, and there is more or less cough. The temperature rises, usually to about 103 or 104 degrees. Whenever, in the course of convalescing from measles or whooping cough, the child suddenly becomes fever ish again, and is troubled with rapid breathing and a hard cough, broncho-pneumonia is usually present. In bad cases the difficulty of breathing becomes more intense, the colour becomes more or less livid, the cough gradually disappears, the lungs become choked with mucus, and death occurs from paralysis of the heart. A good deal may be done to ward off broncho-pneumonia during convalescence from one of the fevers. The temperature of the room in which the child lies should be kept as uniform as possible, and by means of flannel pyjamas the surface of the body should be protected from exposure to sudden changes of temperature. At the same time the room should be kept efficiently ventilated, stuffiness of all kinds being avoided. When the disease has actually occurred the room should be kept at a temperature of about 65 degrees, the bowels should be opened by means of a mild purge, and should be regulated daily throughout the illness. The chest and back should be enclosed in a jacket made of wadding, and the diet should consist of milk, broths and white of egg beaten up with water. The disease is a very fatal one, though often cases which appear to be hopeless recover.

BROTHS AND SOUPS

These, properly made, with a due proportion of vegetable and animal food, without fat, are wholesome and nutritious and serve both for meat and drink; but they must invariably be taken with bread. Many suppose that they are calculated only for those whose powers of digestion are weak, but this is a mistake, the reverse being the truth; because we find, almost universally, that where the digestive powers are weak and deranged, solid aliment agrees the best, particularly solid animal food, since it gives the stomach less to do, and rest to a weak organ is of great consequence; whereas liquid food is apt, in these cases, to dilute the gastric juice too much, besides which, it requires a greater strength of digestive power for its perfect assimilation.

BROW AGUE

See TEETH, NERVOUS RELATIONS OF THE.

BROWN, OR WHOLEMEAL BREAD

Brown bread is more rich in flesh-making substances, bulk for bulk, than fine wheaten bread, because the outer husk of the grain, which constitutes the bran, itself contains a large quantity of that material. When the dough is formed from wholemeal, instead of from fine flour, the cost of the bread is considerably diminished, at the same time that its bulk and weight are, even in a greater degree, increased. The addition of a little milk to the dough has the effect of still further raising the nourishing power of the bread, besides causing it to keep fresh longer; a pint of milk adds one pound to the weight of a loaf. A quarter of a pound of mashed potatoes, mixed in with every four pounds of flour or meal, also improves the keeping quality. Brown bread should not be eaten habitually, if a person is healthy, because no one can be better than well; but if its use is deferred until there is a confined condition of the system, it will be found an admirable remedy; but if the system had become accustomed to its use in health, there would be nothing to fall back upon in disease, and then medicine would have to be resorted to, instead of food—an unnatural, instead of a natural remedy.

BRUISES
are the consequence of a great variety of accidents, such as falls, blows, or severe pressure. Indeed, they occur in some feeble constitutions from the slightest possible degree of pressure. The well-known external appearance that constitutes a bruise arises from the extravasation of blood; that is from the rupture of very minute blood-vessels, and consequent escape of blood into the cellular tissue in the underskin. The gradual disappearance of a bruise takes place by the natural absorption of the extravasated blood by certain vessels, freely disposed throughout the animal frame, called from their office, absorbents; and during this process of absorption the external appearance of the bruised part assumes a variety of hues, changing from its original purplish hue to a greenish, and then a yellow tint. The severity of this, as of most other accidents, may be of every grade; sometimes so slight as to demand no attention; at other times, where the force occasioning it has been great, the bruise is extensive, deep-seated, and intensely painful; perhaps some important viscus may be involved in the mischief, and dangerous or even fatal inflammation may ensue.

In the treatment of recent bruises the first object is to check further effusion of blood. This may be best done by cold applications, and by elevating, if possible, the injured part above the level of the body, in order to retard the circulation. If the bruised parts be very tense and painful, some leeches may be applied near the margins of the dark-blue patch. After the acute stage of pain and heat has passed off, the treatment should be directed so as to favour absorption of the fluids and to remove the swelling: for this purpose the most useful agents are the tincture of arnica montana, a lotion composed of two ounces of spirits of wine to twelve ounces of water, or a solution of sulphurous acid. The large, transparent blisters or vesicles which form over very extensively bruised surfaces should be pricked with a sharp needle and then covered with boracic cotton wool, which will absorb the dark-coloured fluid which is thus allowed to trickle away. For bruises in which the skin is unbroken there is nothing better than arnicated vaseline.

For simple bruises and contusions make a lotion of 1 teaspoonful of arnica tincture to 4 tablespoonfuls of water, and apply to the part affected on lint doubled twice or thrice and soaked in the lotion. Cover with oiled silk, and change the lint or renew the dipping as soon as the lint is dry.

BRUISES, SPRAINS AND, EMBROCATION FOR

See EMBROCATIONS.

BRUISES WITH INFLAMMATION, LINIMENT FOR

See EMBROCATIONS.

BUNION

(French, **bigne**, " swelling from a blow ").

This well-known affection consists in a subcutaneous swelling situated on the inner side of the ball of the great toe. In its earlier stage it is a thin-walled sac, filled with clear fluid, and then causes very little uneasiness, but subsequently, in consequence of constant pressure and friction, becomes hard and tender. Sometimes—particularly after active exercise—the swelling becomes very painful and inflamed, and forms an abscess. The development of a bunion is caused, in most instances, by a distortion of the great toe, and is much accelerated by the use of tight boots and by excessive walking. In those cases where the swelling has existed for some time, and become hard and painful, very little can be done except to recommend boots made large and roomy over the toes, and with the sole thicker at the outer than at the inner edge, so that the foot in walking may be thrown more upon the outer part. When the bunion becomes very tender, and the skin covering it is red and inflamed, the treatment should be immediate and consist in rest and the application of one or two leeches and warm fomentations. In bad cases, an operation offers the only prospect of release.

BURNS

Accidents resulting in burns are of very frequent occurrence, particularly amongst the children of the poor, who are so often, either from negligence or necessity, left to themselves in apartments where there are fires or lighted candles, but particularly the former, resulting in burns occasioned by the clothes catching fire. The first witnesses of such accidents, and the sufferers themselves, when old enough to comprehend what ought to be done, should immediately adopt the best means to exclude the access of air, and particularly of draughts of air, as much as possible ; to apply water or damp coverings for the purpose of extinguishing the fire ; and, thirdly, to remove, as expeditiously as can be done without encouraging the flame, all the ignited articles of dress. Thus, instead of running to the door or out of doors, which fans the flame and extends the injury tenfold, keep the doors and windows shut, and let the first efforts be directed to wrapping up the sufferer in a great coat, blanket, or carpet, or something sufficiently large and thick to cover and exclude from the air all the ignited portions of the dress ; unless, as is sometimes the case, the article of dress which is in flames can be instantly torn off, which may be done if it be a cap, a handkerchief, or a child's pinafore ; but do not run the risk of prolonging the mischief by attempting in the first place to undress the sufferer. It is as well to mention here an instance of very serious aggravation of the injury which resulted from fruitless attempts to strip off the trousers from a youth, who had the misfortune to have fireworks set alight which he carried in his trouser pockets. Had he courageously introduced his hand and thrown out the fireworks, ignited or not ignited, and had one of the numerous witnesses wrapped a great coat closely round the burning clothes, whilst another with water, which was nigh at hand, had presently soaked it well, the youth's life would not have been endangered, and he would have been saved many weeks of acute pain and suffering. While women persist in increasing their inflammability to the highest degree by covering themselves with the greatest possible quantity of the most combustible material, they will be sure to be the occasional victims of a conflagration. Most of the accidents from fire happen to women, and generally when dressed for a ball or a party in some flimsy stuff, with which, like a gaudy butterfly, they hover about a light or blazing fire.

With presence of mind, which is rare in such circumstances, there would be little danger, for the nearest rug, blanket, cloak, or any woollen article, caught up and rolled about the person would easily extinguish the first spark. Bystanders should prevent any one whose dress has caught fire from running about. If the witness of the accident should be a male person, let him strip off his coat, if nothing better can be more readily had, and, holding it stretched out with his two hands catch the burning person, and quickly enclose her in such a way with the garment as to wrap her body tightly around. In respect of accidents from fire prevention is better than cure. Mothers should, therefore, never leave children of tender years alone and untended. Where such a precaution is impossible owing to the absence of a responsible person or, it may be, to poverty, the mother should either take the child with her or place it in the care of a neighbour. Matches, of course, should be removed from within reach of a child, the fire should be protected by a guard, and the chairs removed away from the hearth. Sometimes it is the proximity of a chair that puts the notion of climbing to the mantelpiece into a child's head. As for clothing, the habit of making night-gowns and other articles, of flannelette, or other combustible material, is pernicious in the extreme.

BURNS, DISTORTIONS FROM

Under this heading may be fitly classed those distortions which arise from burns and other extensive destructions and ulcerations of the skin, in consequence of the contraction of the scar in the process of healing. When these injuries take place in the front of the neck and face, the resulting deformity is sometimes frightful. The space between the chin and the breast is filled up by a tense discoloured and corrugated cicatrix, which bows the head forwards and draws down the features so as to expose the inner surface of the lower eyelid and keep the mouth constantly open. When they occur in the flexures of the joints, as in front of the elbow, the cicatrix extends in the form of a hard and rigid web between the humerus and forearm, the joint being permanently bent. Such deformities may sometimes be partly removed by an operation.

BURNS, FIRST TREATMENT OF

If a person has been badly burnt, as by the clothes catching fire, the greatest care must be taken in their removal not to remove also some portion of the skin or flesh to which they adhere. The first thing to be done in the treatment of burns, whether superficial or deep, whether extending over a large or small surface, is to exclude atmospheric air. This may be done by keeping the part wrapped up in clothes saturated with sweet oil ; or a layer of powdered boracic acid may be placed over the burnt surface, and then covered with cotton. Carron oil (so called from the ironworks in Stirlingshire where it was first used), which is a mixture of equal parts of linseed oil and limewater, is one of the best remedies for a burn. A surgeon, giving a few short hints as to what should be done in an emergency for persons severely burnt or scalded, says that "in moving the injured person great care is required so as not to add to the effects of the shock which the system has already experienced. In removing the clothes, it is necessary to do so in such a manner as to avoid tearing off the burnt or blistered skin, which affords a useful protection for the injured surface. The second object is to cover the burnt or scalded parts with a material which will exclude the air. For this object powdered boracic acid answers best, and it should be freely applied. Cotton wool, likewise, if at hand, may be wrapped round the injuries and covered with oiled silk if available. Carron oil might be applied with rags laid over the burns. If carbolic acid be at hand, a mixture of one part with forty of linseed or olive oil, is a most useful application ; the chief object of these several applications being to exclude the air. If the sufferer be greatly exhausted, it would be necessary to give brandy or other stimulant until professional aid can be obtained." Attention must be given to the secretions, which must be kept free. Any symptom which may indicate inflammation of the head, chest, or abdomen must be reported to the doctor and opiates, or whatever is ordered, given, while the strength is kept up with good food. After the emergency treatment, the best dressing consists of lint thickly covered with boracic ointment, which should be renewed twice daily.

BUTTER

Butter consists chiefly of milk-fat, but it contains considerable quantities of the other constituents of milk. It is obtained most readily from cream, but it is also got by the direct churning of milk. Butter which has been made from sweet cream has a pleasanter taste, and keeps longer than that made from sour cream ; this difference is caused mainly by the presence of much casein or curd in the butter from sour cream. The taint, or unpleasant and peculiar taste which butter often possesses, and which is due to bacterial action, can be avoided if precautions are taken to prevent the access of any kind of odorous vapours to the milk or cream, but especially points to the necessity for scrupulous cleanliness in the dairy or shop. Nothing is so strongly absorptive of odours or volatile flavours as butter. It absorbs and retains the vapours from cheese and meat, and especially from every kind of decaying vegetable or animal matter. If the cows have been fed with any strongly-flavoured food, such as swede turnips, the butter made from the milk of that food will be perceived in the taste as well as in the milk itself. Butter always has some salt added to it, and this salt must be quite pure. If it is not free from magnesium compounds, it will impart a bitter taste to the butter. Even fresh butter has some salt in it, from ½ to 2 per cent. Salt butter should not contain as much as 8 per cent., but more has been detected in inferior samples. If butter is to be kept some time, or exported, it receives, besides salt (2 to 5 per cent.), a small quantity of sugar—not, however, more than 8 oz. to the hundredweight. Butter, when taken in moderate quantity is nutritious, and, in general, not difficult of digestion.

BUTTER-MILK

Butter-milk is milk deprived of its oily matter by churning or agitation. It is nourishing, cooling, and diluent, and is used, sometimes with great advantage, in wasting, or a poor habit of body. Good butter-milk is frequently of much service as a remedy in pulmonary consumption, particularly in the early stages of the florid species so often met with in the young and blooming.

CÆCUM

(Latin **cæcus,** "blind," or "concealed").

The cæcum is the first part of the large intestine, and extends downwards from the point where the small intestine enters the large one. It may be described as a sort of pouch, generally about two and a half inches long, and wide.

CALF'S-FOOT JELLY

See GELATINE.

CANCER

is a hard tumour, intersected with firm whitish divergent bands, found chiefly in the excretory glands, or skin, which is capable of contaminating other parts, either by direct communication or through the medium of the absorbents ; it is attended with acute and lancinating pains, and generally terminates in a fetid and serious ulcer. Its most common seats are the female breast and womb, the lip, tongue, stomach, and testicle.

CANCER, CAUSES OF

A cold and variable climate ; a deranged state of the general health; the change effected in the constitution of women at the time when the usual monthly discharge altogether ceases ; blows and other vehicles of mechanical violence, are all popularly supposed to be exciting causes of this complaint. But frequently there is no apparent cause, and when any of the above exist, we must almost invariably consider a disposition in the organ or part affected to take on the diseased actions of cancer, to be necessary to the actual development of this particular malady. There is some reason to regard it as hereditary.

CANCER, DISTINCTION OF

The distinguishing marks of this disease are its stony hardness to the touch ; its being perfectly circumscribed, so that its whole extent and limits unconnected with the surrounding parts, may be distinctly felt ; its never, or very rarely, occurring save in the excretory glands or skin, and especially its power of contaminating other parts in its vicinity, either by direct communication or through the medium of the absorbents.

CANCER, SYMPTOMS OF

When cancer takes place in the breast, it usually begins with a small indolent tumour that excites little attention. In process of time this tumour is attended with an itching, which is gradually exchanged for a pricking, a shooting, and at length a lancinating pain, a sense of burning, and a livid discoloration of the skin. And however difficult it may be to determine the precise point of time in which the scirrhus first becomes converted into a cancer, where these symptoms are united there can be no risk in calling the tumour by the latter name. Adhesive bands are now formed in the integuments, which become puckered ; while the nipple is drawn inwards by suction, and in some instances clearly disappears, the tumour rises higher towards the surface, and feels knotty to the finger ; at the same time that the subcutaneous vessels are distended with blood, and show themselves in dark contorted ramifications. The march of this disease may be slow or rapid, for it varies considerably in its pace ; but at length the integuments give way in a few points to the ulcerative process, and a small quantity of caustic matter is thrown forth ; the ulceration continues to advance, spreading wider and deeper, till a considerable extent of surface becomes exposed, and a broad excavation is scooped out, with a discharge of a most peculiar and offensive smell. The ulcer sometimes affords a delusive hope of recovery by its granulating ; but the granulations are soft and spongy, are liable to bleed from the loose texture of the new vessels, and frequently while one part is covered with them, another part is sloughing. When cancer attacks the womb, it is known by tensive lancinating pains in this organ, shooting through the region of the pelvis ; indurations in the part sensible to the touch ; a preceding and immoderate flow of whites or the menses, or both. As soon as the ulceration has worked to the surface of the organ, there is a bloody or mixed discharge, characterized by the peculiar stench of the disease. By degrees the external parts swell, and the swelling sometimes extends along the thigh. On the tongue, lip, or any other part of the skin which is attacked by this disease, it usually begins with a small wart or pimple, which hardens by degrees, grows irritable and malignant, contaminates the neighbouring glands, and finally ulcerates.

CANCER, TREATMENT OF

With regard to the treatment of cancer, all that can be done is to check the disease as far as possible by its early removal, and thus endeavour to alleviate suffering and prolong life. The great majority of external and some internal cancers can be removed surgically with every prospect of permanent cure. The difficulty of dealing with deeply-seated kinds is to make certain that the root of the disease has been removed, for if not wholly extirpated the growth will develop again and become as menacing as ever. In advanced stages of the disease, palliative treatment, both local and constitutional, must be had recourse to ; but death will sooner or later supervene, and all that can be done is to make the end as easy as possible. It is proper to add here a caution against those who advertise to cure cancers. It may be taken as a rule that those who advertise to cure are ignorant or unprincipled, or both ; and the cases narrated are either purely fictitious (as has been often proven), or the disease removed was not a cancer, but some of the many diseases liable to attack the skin ; for everything presented to " cancer doctors " is called a cancer. Cancer is too serious a disease to be trifled with, and should be entrusted only to expert advice and treatment. A scare once prevailed that raw tomatoes were a cause of cancer. It is difficult to understand how such a theory could impose upon any intelligent person. Of course there is not the slightest reason to impute such results to eating so wholesome an article as a tomato.

CAPILLARIES

(Latin, **capillus,** "hair;" from **caput,** "the head").

These minute tubes branch in every direction throughout the body. They vary very much in size, some of them being no more than the 5000th part of an inch in diameter: the most common size, however, is about the 3000th of an inch. The minute tubes may sometimes be seen in the white of the eye when it is bloodshot. In this state of the white of the eye the little capillaries are gorged with the red globules of the blood. The difference between a minute capillary and a minute artery consists in this, that an artery has three coats, but a capillary has only one coat, which consists of a very delicate transparent membrane with little dots, or nuclei, in it.

CARBOLIC ACID

This is a colourless, oily fluid which is much used for purposes of deodorization and disinfection; when weak, its smell is rather pleasant. It is prepared from coal-tar. The solid acid may be placed in a saucer about the room, or, still better, some of the solution may be sprinkled about. It conceals all odour, arrests putrefactive changes, and has the power of stopping the growth of fungi. For application to wounds as an antiseptic lotion it should be used diluted with water in the proportion of 1 in 40; i.e. half an ounce of carbolic acid to one pint of water.

CARBONIC ACID, HOUSEHOLD TEST FOR

It is well known that carbonic acid gas is present in air, as it is breathed out of our lungs, and the following method has been devised for testing the amount of its impurity. It is called Dr. Angus Smith's household test for carbonic acid, and is applied as follows:—Procure a bottle holding ten and a half fluid ounces, fill it with the air of the room you wish to examine, by blowing it in with a bellows or sucking it in through a glass tube pushed down to the bottom of the vial; pour in half an ounce of lime-water, and, after corking tightly, shake well for two or three minutes. If, after a short time, there is no milky appearance of the lime-water, you may know to a certainty that the ten ounces of air in the bottle do not contain enough carbonic acid to form a visible precipitate of carbonate of lime (chalk) in the lime-water, and this has been proved by careful experiment on a large scale to be equal to less than $\frac{6}{100}$ of one per cent. of carbonic acid in the sample of air tested; a quantity which has been agreed upon by high sanitary authorities as the limit beyond which the accumulation of this impurity (and others, perhaps much more noxious, which seem always to accompany it when it arises from human or animal respiration) is injurious to health and should not be permitted to occur.

CARBUNCLE

(Latin, **carbunculus,** "little coal").

A carbuncle is most frequently

situated where the tissues underlying the skin are of a dense fibrous character, such as the nape of the neck. Carbuncles vary in size, sometimes being as large as an orange. They are very hard, brawny, dreadfully painful, discharging matter from several apertures, and usually attended with considerable constitutional disturbance, such as fever, hectic, etc., the condition being indicative of blood-poisoning.

CARBUNCLE, TREATMENT OF

With regard to treatment, it must be both constitutional and local. The strength must be kept up by raw eggs, cream, milk, beef-tea, mutton-chops, and, when stimulants are necessary, by the administration of wine, ammonia, and bark, etc. Hot fomentations and opiate poultices will probably be needed, and free incision must be made through the thickened implicated tissues. Carbuncles are in their nature so much like extensive ill-conditioned boils, that it is often difficult to draw the line ; and cases of middle character sometimes occur, which some eminent surgeons would call a boil, and others equally eminent a carbuncle, and which we have known the wary and sagacious denominate a carbuncular boil. A carbuncle, like a boil, appears at first in the form of a small, painful pimple ; but an extensive, hard, and depressed tumour is soon discoverable around its base sometimes as large as a saucer. Frequently several pimples appear on the same tumour, and as the carbuncle advances to suppuration, it breaks and discharges at each pimple, and a similar core is ultimately formed and presents itself at each opening. Carbuncles, unlike boils, are generally solitary ; when, therefore, you see a large, deep-red and deep-seated tumour under the skin, usually on the neck or between the shoulders, in its progress opening by ulceration of the skin at several points, and discharging bloody matter and afterwards a pulpy membranaceous core, you may denominate it a carbuncle. It occurs generally in persons who have passed the middle period of life and is itself a sign of constitutional debility. Although the pain is not so much complained of as in boils, probably from less keenness in the sensibility of the patients, it is much more serious in its nature and may terminate fatally.

CARIES

See TEETH, DECAY OF THE.

CARTILAGES

are smooth white elastic substances, sometimes called gristle, which unite bones together, and cover the ends of those which move upon each other, as in the joints. They resemble bone in appearance, but are much softer. There are thin layers of this substance between the joints, or vertebræ, of the spinal column, about the sixteenth of an inch in thickness, which facilitate the bending movement of the back ; and also forming a sort of cushion, they serve to diffuse and diminish the shock in walking, running, and jumping. Cartilage is found in all the joints. It is also added to the end of bones to increase their length, as in the front part of the ribs, which consists entirely of cartilage. Bone itself is in the first instance deposited in the form of cartilage, which is abundant in the young. As age advances, however, much of the cartilage—that, for example, which connects the ribs with the breast—becomes ossified.

CASTOR OIL

See MEDICINES, HOME.

CATALEPSY, OR TRANCE

(Greek, **kata,** " down " ; **lepsis,** " seizing," from **lambano,** " I take ").

Catalepsy, or trance, is a condition in which an individual—very frequently, but not always, an excitable, hysterical female—suddenly seems to lose all consciousness of surrounding objects. She remains fixed in one position, but if that is altered by anybody standing by, the new position is maintained instead of the former. In this state the individual remains for a time, varying from minutes to hours, or days, and then suddenly recovers, knowing nothing of what has passed in the interval. The complaint is rare and many of its symptoms are singular, so that some physicians who have never witnessed an example of it are disposed to regard it in every case as an imposture ; but there is no doubt of its being a real disease. The fact that cataleptics have been interred alive has given rise to much uneasiness in the minds of many, but the period which elapses between death and burial in the United Kingdom is generally sufficient to prevent such an occurrence. Allied to catalepsy is ecstasy, where the individual seems buried in contemplation of some serious subject. This, too, mostly occurs in women and is mainly hysterical.

CATALEPSY, CAUSES OF

A highly nervous or irritable temperament is the chief predisposing cause of catalepsy, and the disease is capable of being induced by terror or other violent emotions of the mind, and by various corporeal irritations, particularly those of the stomach, suppressed menstruation, repelled chronic eruptions, and plethora. Treatment should be directed to removal of the causes (hysteria, neurotic troubles and other ailments) to which the cataleptic condition may be due.

CATARACT

Cataract is a disease of the crystalline lens. The lens becomes opaque, and obstructs the entrance of light so completely that, when the cataract is fully formed, the patient can merely distinguish light from darkness. The pupil loses its natural blackness, and the whitish surface of the opaque lens is seen just behind it. Cataract is not on the eye, as is popularly supposed, but in it. The mistake arises from confounding cataract with the whitish opacities of the cornea. Treatment by any kind of medication is entirely useless ; the only remedy is the removal of the lens by operation, which is often successful. Of course, in the absence of the lens, the light cannot be focussed accurately upon the retina, and people who have undergone this operation have no distinct vision until a convex lens of glass is placed in front of the eye. As no artificial lens can imitate the power of the crystalline to accommodate its focus to different distances, two glasses are required, one for distance and one for reading.

CATARRH, OR COLD IN THE HEAD, TREATMENT OF

The chief symptoms of this disorder are to be found in watering of the eyes, which feel hot and inflamed ; a general feverishness, especially in the head, stoppage of, and running from the nose, accompanied with sneezing, all these being sometimes followed by a troublesome cough. The most valuable remedies in cases of catarrh are those of an antiseptic character. The following is a formula for a liquid of which a few drops may be placed on a handkerchief at intervals and inhaled: half an ounce each of terebene, oil of eucalyptus, camphor and menthol. A less efficient and less cleanly remedy in the early stages of catarrh is menthol snuff. Perhaps the most valuable of all methods of treatment consists in the nasal douche, which is essentially a small glass vessel with an opening at the top which can be closed by the finger, and a nozzle below to fit the nostril. By means of this little instrument various antiseptic liquids, are allowed to flow through the nostrils, the patient breathing through the mouth the while. One excellent liquid is that known as Glycothymoline; another useful formala for the same purpose is the following: glycerine of carbolic acid, one drachm; borax, half a drachm; bicarbonate of soda, half a drachm; water to six ounces. After the first stage has passed nasal douches and inhalation have little effect. Hot baths, saline purges, such as Epsom salts or Seidlitz powder, pure air and rest, are the principal curative agents at this stage. When there is much cough or throat irritation, the inhalation of the vapour from a drachm of Friar's balsam in a pint of boiling water generally gives relief. The vapour should be inhaled from a jug round the top of which a towel is wound in such a way as to form a face-piece.

CATECHU AND CAYENNE GARGLE

See Gargles.

CATHARTIC DRAUGHT

See Draughts.

CAVITIES OF THE BODY

The cavities into which the body is divided, and in which lie the different organs, are:—(1) the Skull; (2) the Chest; (3) the Abdomen; (4) the Pelvic Cavity.

CELLULAR TISSUE

This is a loose and very thin membranous structure, which fills the space between the muscles and between them and other solid parts, connecting them together without interfering with their functions. It may be seen everywhere between the muscles and the skin, of a light shining colour, giving a smoothness and softness to the surface of the body. It forms a great many little cells, which are kept moist by watery vapour exhaled from the minute branches of the arteries; but if it should be exhaled in greater quantities than can be removed by the absorbents, it fills and distends the cells and constitutes cellular dropsy, or anasarca.

CELLULOSE

This is one of the substances constituting the cellular tissue of plants, being the material which forms the walls or sides of the vegetable cells. Like starch, it consists of carbon, hydrogen, and oxygen, and is convertible into starch and sugar. It is not, however, all food that is taken into the stomach that is digestible. Cellulose, though apparently digested by many of the lower animals, is not digested by man. It therefore passes through the bowels unchanged. Another substance, called gum, is not absorbed in the stomach or bowels, and therefore cannot be regarded as nutritious.

CEMENTUM

is a layer of hard tissue covering the roots of the teeth. The dentine, or so-called ivory, constitutes the bulk of the tooth. It is, so to speak, its framework, giving each tooth its shape and size. The pulp, commonly but incorrectly called the nerve, occupies a cavity in the centre of the tooth, and corresponds to its general form. The pulp supplies nourishment to the tooth. When it dies, the tooth loses its translucency, the dentine loses its sensibility and gradually changes its colour. Nerves and blood-vessels enter through the minute openings at the extremity of the root, and pass through the small canal in the root to the pulp cavity. With the exception of this small aperture, the pulp is entirely surrounded by solid dentine.

CEREBELLUM

(Latin, **cerebellum**, diminutive of **cerebrum**, "brain").

The cerebellum, or "little brain," technically speaking, is the postero-inferior, or lower and hinder division of the brain. It is believed to be endowed with the function of regulating in unison and harmonizing the various muscular movements, so that they may be performed smoothly and without confusion. A person in whom the cerebellum were diseased, would lack the adequate controlling power over his muscles and walk like a drunken man.

CEREBRAL MENINGITIS

(Latin, **cerebrum**, "brain"; Greek, **me'ninx, meninggos,** "a membrane").

This disease is inflammation of the membranes covering the brain, and is always extremely serious. Children and elderly persons are more commonly attacked by it than others, but it may occur at any age. With children the noticeable symptoms are disturbed sleep, a cast or rolling of the eyes , dilated pupils, convulsions. With older persons who can tell their symptoms, there is severe headache, intolerance of light, want of sleep, mental disquietude ; sometimes unnaturally acute hearing ; constipation ; sometimes sudden loss of speech, and delirium.

CEREBRAL MENINGITIS, TREATMENT OF

The doctor should be sent for without delay, the patient being meanwhile kept in a darkened room, from which every sound and every person except the nurse is excluded. Cold applications will be ordered at once, and to do any good must be kept up steadily, uniformly, and over a definite surface, never for a moment being allowed to become warm. There is no need whatever for soaking the bed while keeping up the cold application to the head. See that the patient's body is not chilled by clothing made damp through careless use of cold water ; and keep the feet warm. Obstinate constipation will be one of the symptoms, and purgatives will be ordered, the object being to produce very free movement of the bowels. If the full effect of the doses is not secured, report at once to the doctor. The most profound tranquillity of body and mind must be preserved ; every noise must be suppressed, and no sort of moving about in the room allowed which can in any way be avoided. No food is to be given without permission, and then it is to be of the simplest kind, such as milk, thin gruel, rennet, whey, etc. The kind and quantity of food must be prescribed by the physician. Milk for either children or adults will probably be all that is required for some little time. If in the doctor's absence there should at any time be symptoms of sinking—cold sweat, fixed and glassy eyes, stupor, palsy—the nurse may give, on her own responsibility, an ounce of wine in hot water, and an ounce of strong beef-tea, if it is at hand : for a child half the quantity. The feet should be warmed, and the doctor sent for immediately. On no account, if the patient is a baby, is it to be rocked in a cradle or chair, or moved backwards or forwards on the knees. Keep it in bed with head raised on a thin pillow. In convalescence no visits are to be allowed ; no general conversation in the room, no reading, no thinking, if possible. The room must still be shaded and perfect rest enforced until all possibility of relapse is over. In spinal meningitis the symptoms differ decidedly ; there is excessive pain in the back, extending to the extremities. The body becomes rigid, but from time to time there are convulsive starts. Paralysis begins in the lower limbs, and gradually extends. There is nothing to do but to follow the doctor's directions carefully, and should the case be long continued, to guard against bedsores.

CEREBRO-SPINAL FEVER, SYMPTOMS OF

This is a disease which was but little if at all known before 1837, when it prevailed with great virulence in various parts of France. It is an acute epidemic disease, characterized by profound disturbance of the central nervous system, and marked by shivering, giddiness, intense headache, delirium, and spasms of various muscles ; there is great prostration, and occasionally a purple eruption appears on the skin. Age does not seem to have much influence on this disease ; children, old people, adults, all suffer during an epidemic ; males, however, seem more liable to it than females. Season has a remarkable effect upon this malady ; it occurs especially during the cold months. Fatigue, cold, over-crowding, foul air, and dirty dwellings have been put down as exciting causes of this disease, but little is known for certain on these points.

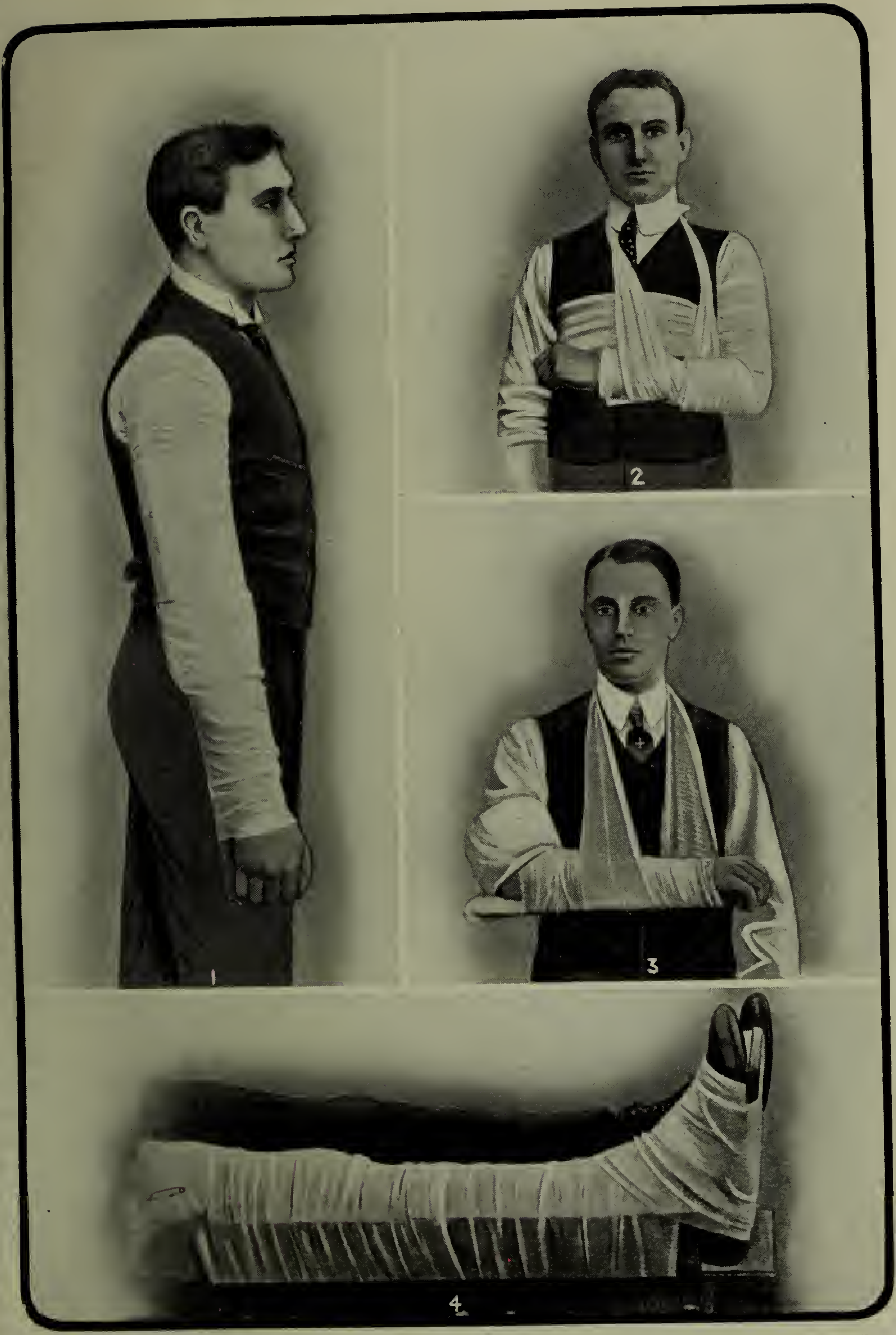
CEREBRO-SPINAL FEVER, TREATMENT OF

The treatment of cerebro-spinal fever by remedies is very unsatisfactory ; it is doubtful if the administration of any medicine has been beneficial in doing more than relieving symptoms ; for this purpose opium or morphia has been given to allay pain and spasms. Sulphate of quinine in large doses, and given early, appears to have benefited some cases ; bleeding and mercurial preparations are of no value, and may do harm. Cold and ice applied in rubber bags to the head and back may subdue the inflammation. The diet must be generous and nourishing, and consist of milk, beef-tea, etc.

CEREBRUM

The brain, which, not only in man, but in the higher animals, constitutes so large a proportion of the nervous system, has in itself no power of sensation, for it may be, and after accidents very often is, cut without the individual—although quite conscious—having any sense of pain. Without doubt, the brain is the organ upon which depend the manifestations of will, intelligence, memory, and such like, and by which the conscious mind of man is linked with the processes and actions of the body by means

BANDAGING. No. II.



1. To bandage a broken arm. 2. A ready sling for an injured arm. 3. To bandage a broken wrist. 4. Splints and bandage for a broken leg.

of other portions of the nervous system.

CERVICAL VERTEBRÆ

The term applied to the upper vertebræ of the spine situated in the neck, or between the base of the skull and the shoulders. It is interesting to note that the number of cervical vertebræ is the same in all the mammalia (that is, animals that produce their young alive). Thus the necks of man, the whale and the giraffe contain equally seven separate vertebrae.

CESSPOOLS, EFFLUVIA FROM

In seeking to counteract the effluvia from cesspools, drains and the like, either when their contents are being removed or when they are being cleansed, a liberal use of disinfectants is necessary. Deodorizers are of no advantage whatever. They simply replace one odour with another, leaving the germ-laden air absolutely untouched. It is the thing that causes it and also the microbe-saturated environment which call for attention.

CHARCOAL

First in efficiency, cheapness and availability of artificial antiseptics, deodorizers, and disinfectants, is charcoal. The disinfective properties of charcoal are due almost entirely to its great porosity. Liebig states that the pores in a cubic inch of beech charcoal must, at the lowest computation, be equal to the surface of one hundred square feet, and some chemists have estimated it at more than double this amount. By reason of this peculiar physical structure, the charcoal becomes endowed with a remarkable capacity for absorbing and condensing gases ; and hence, when it is exposed to an atmosphere containing the putrid products of decomposition, it quickly absorbs them. Thus far the action of charcoal is strictly mechanical, but it does not stop here, for when once the miasma becomes stored in the pores of the coal, a secondary and chemical action is promoted by reason of the intimate contact of the former with the air condensed also in the charcoal. This contact causes rapid oxidation to take place, and as oxidation is a species of combustion, the putrid matters are burned up and destroyed as effectually as if they were passed through the ignited coals of a furnace. Freshly burned and broken charcoal will absorb from ten to fourteen per cent. of its own weight of gases and moisture from the atmosphere during a period of twenty-four hours, and it is capable of absorbing ninety times its own volume of ammonia, or fifty-five times its own volume of sulphuretted hydrogen. The disinfecting and deodorizing power of fine charcoal depends upon its being both fresh and dry. Charcoal loses its absorptive and disinfecting power in a great degree by use, but can be restored to full efficiency by moderately heating it.

CHARCOAL AIR-FILTERS

The use of charcoal air-filters, consisting of a layer of charcoal in coarse powder, varying in size, according to circumstances, between a small bean and a filbert, has been strongly recommended for ventilating purposes. The charcoal is placed between two sheets of wire gauze, fixed in a frame, and can be readily applied to buildings, ships, to the air-shafts of sewers, to water-closets, and various other purposes. All the impurities of the air are absorbed by the charcoal, so that a current of pure air alone passes through the filter ; and in this way pure air may be obtained from exceedingly impure sources. The efficiency of the charcoal appears never to diminish if it is kept dry, and its pores are not choked up by dust.

CHARCOAL POULTICE

See POULTICES.

CHARCOAL, PURIFYING PROPERTIES OF

Foul water, filtered through a layer of powdered charcoal, is decolourized and purified. Sugar refiners render brown sugar white by passing it in solution through animal charcoal. In case of poisoning with vegetable poisons, such as opium, morphia, and strychnia, one of the best immediate antidotes that can be given is powdered charcoal in water ; this absorbs the poisonous principle, and renders it inactive. The decolourizing action of charcoal may be illustrated by filtering porter, port wine, or water coloured with ink, through a small quantity of animal charcoal. The filtered liquor will be deprived of smell, taste and colour.

CHARCOAL TOOTH POWDER

See HYGIENE OF THE MOUTH.

CHEST

The cavity of the body known as the "chest" is situated between the neck and the abdomen. It contains the heart and large blood-vessels, together with the lungs. "It is singular," it has been remarked, "how much ignorance there is among the uneducated regarding the situation of what is called the chest.

CHEST, INJURIES OF THE

In injuries of the chest it should first be sought to ascertain whether there be fracture of a rib by feeling with the fingers for crepitus, or grating of the broken bone, and by paying particular attention to the patient's breathing. If he breathe shortly, and complain of pain on a full inspiration at the precise part where the blow was received, if coughing or sneezing produce pain in the same spot, and particularly if coughing and spitting of blood have come on since the accident, it may, without hesitation, be pronounced that there is a fracture of a rib, and in the latter case a wound of the lungs by the fractured bone.

CHICKEN-POX, OR VARICELLA

This disorder, to which infants and young children are chiefly liable, is sufficiently distinguished from the small-pox by its fluid, except in a few anomalous cases, being limpid throughout, and by its concreting into crust, as early as the third or fourth day from the eruption ; while in small-pox the fluid becomes purulent, and does not concrete into crusts till about the ninth day, and often much later.

CHICKEN-POX, SYMPTOMS OF

In the chicken-pox, after slight symptoms of fever, as lassitude, loss of sleep, wandering pains, loss of appetite, etc., an eruption appears ; first on the back, consisting of small reddish pimples, much resembling the first appearance of small-pox. On the second day the red pimples become small vesicles, containing a colourless fluid and sometimes a yellowish transparent liquor. On the third, the pustules arrive at their full maturity, and, in some instances, very much resemble the genuine small-pox. Soon afterwards, the fluid escapes from the tender vesicle, and a thin scab is formed at the top of the pock, without pus ever being formed as in the true small-pox. Generally before the fifth day the whole eruption disappears, and no cicatrix or mark is left behind. Chicken-pox is entirely free from danger, unless the eruption be of the confluent kind, that is, the pimples being numerous and running into each other, when the danger is to be appreciated from the degree of violence of the concomitant fever. Chicken-pox is not, as is often supposed, a variety of small-pox, since neither disease confers immunity from the other. In order to distinguish between the two the following points may usefully be noticed. In small-pox acute symptoms appear two or three days before any eruption, but in chicken-pox are slight or wholly absent ; in small-pox the eruption usually appears first on the face and the spots feel hard, like shot below the skin—characteristics never found in chicken-pox ; in small-pox the spots are in the form of circular raised blisters depressed in the centre and become filled with matter, but this umbilical appearance, as it is called, is only occasionally met with in chicken-pox and matter forms by chance.

CHICKEN-POX, TREATMENT OF

In the ordinary course of this complaint the symptoms are so slight as not to require the aid of medicine. Gentle purges are all that are in general necessary. If the shivering, sickness, headache, and pains in the limbs are severe, an active purge should be administered, succeeded by some diluting drink ; and the patient should be confined to a quiet, spacious, and well-ventilated room, with a cool dress, till the febrile symptoms have disappeared. In many cases the child will play about as cheerfully as usual, and appear to be perfectly free from illness. Care must be taken, however, lest the child catch cold during this trifling disease, or serious lung disease may result. Chicken-pox is contagious. It is by many called the glass-pock.

CHILBLAIN LINIMENT

See EMBROCATIONS.

CHILBLAINS

The chilbrain is a painful inflammatory swelling, of a florid, deep purple, or leaden colour, appearing in the fingers, toes, heels, and other extreme parts of the body. The pain is sometimes intermitting and pungent ; but the patient is more frequently annoyed by an obstinate itching and sense of tingling. The part often swells, and ulceration not unfrequently follows, in which case a simple separation of the skin is first observed, and below this there appears a foul, irregular painful ulcer. It is most frequently found in children and older persons of relaxed fibres, and the common exciting cause is exposure to severe degrees of cold. Many persons subject to chilblains might prevent their occurrence, or very much lessen their severity, if upon the approach of winter they were to defend the parts from external cold. Occasional friction should also be resorted to.

CHILBLAINS, TREATMENT OF

A stimulant mode of treatment is the only one cure that will answer. Salicylic vaseline will probably be efficacious. In the inflamed, unbroken state the application of a stimulating liniment, or lotion, is generally sufficient for a cure, if it be used daily and with perseverance, the part being protected at the same time from the severity of the external air. Sir Astley Cooper is said to have been partial to the following liniment :—Take of camphorated spirits of wine, one ounce; Goulard's extract (pure), half an ounce. Mix and apply to the part.

CHILBLAINS, ULCERATED, TREATMENT OF

When chilblains come to the ulcerated state, or "broken" state as it is sometimes called, warm and irritating dressing will alone succeed in effecting a cure. The following application is much esteemed : Take of honey and common turpentine, of each four ounces. Mix these together, and then stir in a sufficient quantity of the finest wheat flour, to give it the consistency of a cerate. Dress the part with it twice daily.

CHILD, BIRTH OF, WHAT SHOULD BE DONE AT

See Birth of Child.

CHILD, TREATMENT OF, AFTER BIRTH

The first thing to be done after the birth of a child is to sever it from the mother by the division of the cord or navel string, and to carry it away in the flannel receiver, and place it in a position free from danger. Provided there is nothing to hinder it, so soon as the child is removed, the process of washing and dressing may be at once begun. Should the condition of the mother, however, require the services of both nurse and attendant, or should there be anything in the condition of the child to forbid it, the washing and dressing may be deferred. Where, however, there is nothing preventing, it should be proceeded with at once. The various articles of clothing which the child is to put on should have been hung upon a chair at the beginning of labour in proximity to the fire, and will now be thoroughly aired, and ready to put on as soon as the child is washed. The child having been washed, should be carefully removed from the bath and placed on a pillow covered with warm cloths upon the nurse's knee, and dried by means of warm, soft towels. The washing and drying being now at an end, the putting up of the navel string should engage attention. For this purpose a piece of soft, old linen should be taken, and a hole cut in the centre. Through this hole the navel string should be drawn (notice being taken while doing so that there is no bleeding from the end), and the lower part folded up against the other, so as to be brought into contact with the child's abdomen. It will thus lie between the two folds of the linen. The cord is maintained in position by means of the flannel binder, which should now be applied. This binder should be made about five inches deep, and of sufficient length to encircle the child's body once and a half. It must on no account be drawn too tight, as the action of the internal organs may be interfered with, and the liver, which in the infant is large, may be unduly pressed upon and injured. It has this further disadvantage when made very tight, that it interferes with the free action of the lungs. Care must therefore be taken in applying the binder that it does not press injuriously upon any part, and in order to ensure this there ought always to be sufficient space left after it is applied to permit of the finger being insinuated between it and the skin. It is better to retain it in position by means of a few stitches. If pins are used, the ordinary ones should be avoided, and safety pins employed instead. Unless great care be taken in introducing them, ordinary pins are very apt to prick the child, and rather than run any risk, they had better not be used. Next to the flannel binder is placed a shirt, which preferably should be made of wool, as it will then afford the child both more warmth and greater protection against cold. Above this the petticoat should be placed, and then the infant's frock or slip. A shawl or piece of flannel should also be provided to throw over the infant's shoulders. The head is better kept bare.

CHILDREN, ADMINISTERING OF MEDICINE TO

See MEDICINE, ADMINISTERING OF, TO CHILDREN.

CHILDREN, BARE FEET FOR

See BARE FEET FOR CHILDREN.

CHILDREN, BATHS FOR

See BATHS FOR CHILDREN.

CHILDREN, CASES OF EMERGENCY WITH

(1) If the child be suddenly attacked with vomiting, purging and prostration, send for a doctor at once. In the meantime put the child for a few minutes in a hot bath, then carefully wipe it dry with a warm towel and wrap it in warm blankets. If its hands and feet are cold, bottles filled with hot water and wrapped in flannel should be laid against them.

(2) A poultice of Indian meal, or one made of flax-seed meal to which one quarter part of mustard flour has been added, or flannels wrung out of hot vinegar and water should be placed over the belly.

(3) Five drops of sal volatile in a tea-spoonful of water may be given every ten or fifteen minutes.

(4) If diarrhœa has just begun, or if it is caused by improper food, a teaspoonful of castor oil, or of the spiced syrup of rhubarb, should be given.

(5) If the child has been fed partly on the breast and partly on other food, the mother's milk alone must now be used. If the child has been weaned, it should have its milk-food diluted with lime-water, or should have weak beef-tea or chicken-water.

(6) The child should be allowed to drink cold water freely

(7) The soiled diapers or the discharges should be at once removed from the room, but saved for the physician to examine at his visit.

CHILDREN, DIET OF

The following tables of dietary will be found useful as a guide for parents :—

1. From eighteen months to two years old.—Breakfast at 7.30 a.m. A large cup of new milk, with a good slice of stale bread ; or half a pint of hot bread and milk. Dinner should be taken about 1.30 p.m. It may consist of some good beef-tea or broth, in which some bread crumbs or a well-mashed potato may be mixed. A cup of milk and water may also be given. At 6 p.m. a large cup of milk may be given, with a slice of bread and butter. No other meal need be given, as the child, when healthy, ought to sleep all night, and it is bad to accustom it to wake in the night and cry for food. Yet, if it should do so, a little milk and water may be given. Farinaceous food should not be given at an early age to any extent, as the stomach is overloaded by

that means, and fails to digest it properly.

2. From two to three years old.—Breakfast at 7.30 a.m. A large cupful of milk, with a slice of bread and butter, and now and then the lightly boiled yolk of an egg. At 11 o'clock a.m. a cup of milk may be given. For dinner, a large cup of beef-tea or broth, or a little finely cut-up roast mutton; or three or four tablespoonsful of gravy, in which bread crumbs or a mashed potato may be mixed. A small quantity of rice pudding, with plenty of milk, or a piece of custard pudding. At 6 p.m. some milk may be given, or a little tea with plenty of milk in it, together with some bread and butter or some toast and butter. Now and then a little stewed fruit may be given, or occasionally a little jam.

3. From three to ten years of age.—The amount of food given will vary with the age and appetite of the child. Breakfast at 7.30 a.m. A basin of bread and milk, with some thick slices of bread and butter. Occasionally a lightly boiled egg may be given. At 11 o'clock a.m. a small slice of bread and butter may be given, if required, with a little water or milk and water. Dinner at 1.30 p.m. Some lightly boiled mutton, or a slice of roast beef or mutton with plenty of gravy; bread should be eaten with it, or a mashed potato. A light pudding may be given, as rice, custard, ground rice, etc. At times a fruit pudding, well cooked, may be tried, or well-stewed fruit is beneficial. Considerable variety may be adopted at this age, provided that too much is not given, and that it is digested well. Broth or soup may be substituted once or twice a week for the meat. Boiled salt beef, pork and veal are not so easily digested as fresh beef and mutton. Cheese is not advisable. Prunes, figs, almonds, and raisins, and such-like fruits, may be given now and then with advantage; but any excess should be avoided carefully. Biscuits, nuts, preserved foreign fruit, walnuts, and dates are less digestible. A roasted apple, well sugared, or stewed pears are very nice, and suitable for children; and occasionally some jam, as raspberry, strawberry, or currant preserve, may be given with bread at tea-time. At 6 p.m. milk and water, or tea with plenty of milk, may be given, also bread and butter. Plain seed cake, or a slice of an ordinary home-made plum cake, may be substituted, or a sponge cake. There is seldom any occasion for supper; if required, a thin slice of bread and butter may be given.

4. From ten to fifteen years old.—The same diet as No. 3, only now more may be given in proportion to the age: boys, too, often require more than girls, as they undergo more active exercise. A good meat meal should be given at midday, but it is not required oftener. For breakfast, cocoa and milk is very nutritious, or a basin of gruel made from Robinson's Patent Groats with fresh milk may be substituted for the bread and milk. These diets presuppose that the child is in good health, and that active exercise is taken; but if disease be present, some modification may be required, and for this medical advice should be sought. In the treatment of children's diseases more than half the success is due to the careful arrangement of the diet.

CHILDREN, HOW TO CARRY

The following advice upon the manner of carrying an infant in its nurse's arms is given by Dr. Eberle:—"The spine and its muscles seldom acquire sufficient strength and firmness before the end of the third month to enable the child to support its body in an upright position without inconvenience or risk of injury. Until this power is manifestly acquired the infant should not be carried or suffered to sit with its body erect, without supporting it in such a manner as to lighten the pressure made on the spine, and aid it in maintaining the upright posture of its head and trunk; therefore, at first (a few days after birth), the infant should be taken from its cradle or bed two or three times daily and laid on its back upon a pillow, and carried gently about the chamber. After the third or fourth week the child may be carried in a reclining posture on the arms of a careful nurse, in such a manner as to afford entire support both to body and head. This may be done by reclining the infant upon the forearm, the hand embracing the upper and posterior parts of the thighs, whilst its body and head are supported by resting against the breast and arms of the nurse. When held in this way, it may be gently moved from side to side, or up and down, while it is carefully carried through a well-ventilated room. The manner in which infants and young people are handled by their nurses and by those who daily surround them is one that is productive of mischief to the child, and requires to be noticed here. Thus an infant is often rudely grasped by one or other arm and lifted from the ground, the weight of the body being meanwhile almost entirely supported by the arms, and as the joints of an infant are not so deeply excavated as those of the adult, and portions of bone are but imperfectly united to each other, the former may be very easily dislocated and the latter separated or broken."

CHILDREN, SIGNS OF DISEASE IN

See Disease, Signs of, in Children.

CHILDREN, SLEEP FOR

Childhood, it is well known, requires a greater amount of sleep than mature age. The rule should be, for children between five and seven, about twelve hours' sleep; children above that age, ten, and never less than eight. Care should be taken that they are disturbed as little as possible. The time for going to sleep should be seven in summer and about six o'clock in winter. Keeping strictly to this hour will not only be beneficial to the children's health, but will accustom them to a certain sense of punctuality and obedience.

CHILDREN, WARMTH FOR

There is no time of life at which warmth is of more importance than in infancy. In a very young child the circulation is almost altogether confined to the surface, the internal organs being yet in a very weak condition. This being the case, to plunge the child into cold water, from an idea of making it hardy, as is done in some countries, and even in the United Kingdom by some ignorant people, is the height of cruelty and folly; for the unavoidable consequence is that the blood is thrown in upon the internal organs, and inflammation, bowel-complaints, croup and convulsions are very likely to ensue. A baby should be kept at a temperature above what is suitable for a grown person; it should be warmly but not heavily clothed; the room in which it is kept should be maintained at a good but not oppressive heat; and it should never be put into other than tepid water.

CHLOASMA, OR LIVER SPOTS, commonly occur on the back and chest in the form of fawn—or liver-coloured patches. They are due either to excessive perspiration (hence their frequency in consumptives) or to want of bodily cleanliness and the wearing of under-flannels too long unchanged. Nevertheless they may be found in persons of sound health and undeniably cleanly habits. The spots are circular, somewhat raised, scaly and superficial. They occasion considerable itching when the person is heated or after exercise, and are contagious. The daily cold bath and a warm bath at least once a week, with frequent change of underclothing, are essential. The same garment must not be worn day and night. Wash the affected part thoroughly with soap and warm water and then rub with a flesh brush to remove the natural oiliness of the skin. Painting with iodine or bathing with a sulphurous acid lotion (one part to three parts of water) is usually very efficacious.

CHLORINATED SODA POULTICE
See POULTICES.

CHLORINE
(Greek, **chlo'ros**, "grass-green").
Of all readily available disinfectants and deodorizers, that which holds the foremost rank is chlorine, either in the state of free gas, or in combination with lime or soda, as chlorides (hypochlorides) of these bases. Chlorine acts not only chemically upon the gases produced, but upon the organized molecules of the miasmatic matter itself, decomposing and destroying them. Its penetrating quality enables it also to reach the poisonous gases in their most secret recesses, and diffused in an atmosphere loaded with typhoid or malarial poison it will remove all infection almost immediately.

CHLORINE AS A DISINFECTANT

The use of chlorine as a disinfectant, however, requires care. In the form of bleaching powder (chloride of lime), it may be sprinkled over the surfaces of damp decomposing or putrescent materials. For use in apartments it is best to mix the bleaching powder with a little water, and expose the same to the air in shallow vessels, if possible upon a high shelf. This compound is gradually decomposed by the carbonic acid of the atmosphere, and the chlorine being evolved, falls slowly down and is diffused throughout the room. If a more rapid action is required, a little diluted sulphuric or hydrochloric acid may be allowed to drop into the chloride of lime solution, from a vessel suspended above it, by means of a piece of lamp-wick arranged in the form of a syphon. Another method is to suspend in the apartment cloths steeped in a solution of bleaching powder. "It should be borne in mind," said Faraday, "that chlorine in any form must only be used as an aid to proper ventilation. It is a necessary condition of health that our houses and rooms be properly ventilated. There is no substitute for ventilation any more than for washing or for general cleanliness. Chlorine, like medicine, ought in general to be used on special occasions and under advice. In a sick-room, when ventilation is often difficult, chlorine, liberated in very minute quantities, will often be found singularly refreshing; but in this, as in all other cases of fumigation with chlorine, all metallic articles in the apartment ought to be removed, for these become speedily tarnished by the action of chlorine."

CHLOROSIS, OR GREEN SICKNESS

Chlorosis, or green sickness, is a complaint which occurs chiefly in girls about the age of puberty, and is characterized by a pale, blanched complexion, languor, listlessness, and depraved appetite and digestion: the several secretions being faulty or inert, especially at the beginning. It is called green-sickness, from the pale, livid and greenish cast of the skin so commonly present.

CHLOROSIS, CAUSES OF

All the symptoms indicate it to be a disease of debility. Constitutional weakness and relaxation frequently dispose to green-sickness; and whatever enervates the general habit, or the stomach in particular, such as indulgence in heated rooms and late hours, long residence in crowded cities, insufficient or innutritious diet, and constipation may be ranked among its causes.

CHLOROSIS, SYMPTOMS OF

The symptoms consist chiefly in a general sense of oppression, languor, and indigestion. The languor extends over the whole system, and affects the mind as well as the body; and hence, while the appetite is feeble and capricious, and shows a desire for the most unaccountable and most innutrient substances, the mind is capricious and variable, often pleased with trifles, and incapable of fixing on any serious pursuit. The heat of the system is diffused irregularly, and is almost always below the point of health; there is consequently, great general inactivity, and particularly in the small vessels and extreme parts of the body. The pulse is quick, but low, the breathing attended with labour, the sleep disturbed, the face pale, the feet cold, the nostrils dry, the bowels irregularly confined, and the urine colourless. An almost invariable symptom is a diminution or cessation of the menstrual flow. There is also sometimes an irritable and distressing cough; and the patient is thought to be on the verge of a decline, or perhaps to be running rapidly through its stages. A decline, however, does not follow, nor is the disease found fatal, although it should continue, as it has done not unfrequently, for some years.

CHLOROSIS, TREATMENT OF

The great object of treatment is to get the system into a state of good general health, by the use of iron and aperients; in conjunction with horse exercise, change of air and scene, a moderate but nutritious diet, and cheerful society. Four to six Blaud's pills should be taken daily for three or four months, and in addition one or two aloes pills may be taken every second night if required.

CHOKING

The term choking is applied to the accident of something sticking in the throat, whether it be a body too large to pass readily into the stomach, and being therefore detained in some part of the œsophagus or gullet, in the act of swallowing, or whether it be something which has accidentally passed from the mouth into the trachea or windpipe. This is an accident liable to happen to hungry persons eating hastily, or to children, and its treatment often requires the greatest self-control and presence of mind on the part of those who are present. The substance which causes the choking may either be at the top of the throat, or at the entrance to the gullet, or lower down. If at the upper part of the throat, prompt action will often remove it, either by thrusting the finger and thumb into the mouth and pulling the obstruction away, or, if it cannot be reached so as to pull it away, a piece of whalebone, a quill, or even a penholder—anything at hand should be seized and pushed down as a probang, so to force the substance down the gullet. (A probang is a small rod, usually of whalebone, with a piece of sponge at the end.) Tickling the back of the mouth with a feather, so as to produce sudden retching, will sometimes dislodge it ; a sharp blow on the back will perhaps displace it, or a sudden splashing of cold water in the face, causing involuntary gasping. Should the patient become insensible before relief can be afforded, it must not be assumed for certain that death has taken place, and such remedies as dashing cold water in the face and on the chest, applying ammonia to the nostrils, and inflating the lungs by bellows, etc., should be continued till medical aid arrives. When any foreign substance, solid or fluid, be it ever so small, as, for example, a crumb of bread or a drop of water, passes into the windpipe, it immediately occasions distressing cough, and interrupted respiration from spasm of the muscles at the top of the windpipe, and this, as we observed before, is also called choking, but is altogether a different kind of accident from the one we have just been considering. The substance here is always small, and is usually a dry crumb of bread, or a drop of fluid, drawn accidentally into the windpipe in the act of inspiration, which frequently occurs from an incautious attempt at speaking whilst in the act of swallowing. Quietude on the part of the sufferer, and refraining wholly from further speech, is all that can be recommended. It may be doubted whether the common practice of taking a little drink really does any good, but as it is unattended by any evil, it may be resorted to. When you reflect that the offending matter is in the windpipe, and that the drink goes down the gullet, it is perfectly clear that it cannot be washed down, as is commonly believed ; still, however, it is possible that the act of swallowing the drink may, by suspending for the time the action of breathing, allow the muscles of respiration to recover more readily from the state of spasm, into which they have been thrown by the irritation from the offending matter. With this view, therefore, the drink should be swallowed as slowly as possible, and with the same view a voluntary suspension of breathing, as long as can be done in these circumstances, tends to lessen and shorten the state of distress. Nature, however, generally removes the offending cause by the efforts of the cough which is invariably produced. Paralytic patients are very liable to this species of choking, and sometimes a large piece of food has been known to slip into the windpipe of such a person, and produce imminent danger of suffocation. In such an extreme case a surgeon, if at hand, would be justified in performing the operation of cutting into the windpipe (tracheotomy).

CHOLERA INFANTUM

Cholera infantum, or inflammatory diarrhœa, is a disease much more prevalent and fatal in large cities than in the country. It is especially common among the poorest classes who live in the most crowded districts. It is a disease principally of the summer months, and generally attacks children between the age of three months and two years. It rarely attacks breast fed infants, which shows that it is, at any rate, aggravated by milk containing impurities and the germs of fermentation. The attack generally begins with vomiting, and this is soon followed by rapidly increasing watery diarrhœa. The tongue becomes thickly coated, and there is great thirst and restlessness. Unless steps are taken to arrest the progress of the attack the symptoms of collapse soon manifest themselves. The eyes are sunk, the face becomes of an earthy pallor, and the previous restlessness is replaced by extreme feebleness and listlessness. A large proportion of cases die in about a week from the onset. In the way of treatment much can be done. The chief preventive measures consist in boiling or sterilizing every drop of milk taken by an infant during the summer months. Once the diarrhœa has commenced the first thing is to give a dose of castor oil or a couple of grains of calomel in order to clear away all irritating or decomposing food from the intestine. Unless the child is at the breast all milk in any form should at once be discontinued. For one or two days nothing should be given but cold boiled water and white of egg mixed with barley-water. To prepare the latter mixture one white of egg should be allowed to each half-pint of barley-water, a little sugar being added to make the mixture more palatable. Teaspoonful doses of the following mixture should be given every two hours, until the vomiting and diarrhœa have ceased. Carbonate of bismuth, one drachm; salicylate of soda, one drachm; glycerine, two drachms; water to two ounces.

CHOLERA MORBUS, OR BRITISH CHOLERA

(Greek, **chol′er,** " bile "; Latin, **morbus,** " disease ").

Cholera morbus is an affection of the stomach and bowels common in hot weather, and rarely seen in temperate climates at other seasons. In many respects it resembles true or Asiatic cholera, and the more severe cases can hardly be distinguished from that pestilence but by the disease not occurring in an epidemic form. This disease is, therefore, sometimes called British cholera, and, from its appearing in isolated cases, sporadic (" scattered," from the Greek, ***speiro,*** " I sow ") cholera.

CHOLERA MORBUS, CAUSES OF

British cholera is caused by the use of indigestible food, stale meat or fish, impure drinking-water, etc.

CHOLERA MORBUS, SYMPTOMS OF

At the beginning of an attack there are vomiting and purging of liquid matter, and bile in quantities, violent pains in the stomach, cramps of the legs and muscles of the abdomen, coldness, faintness, and a tendency to collapse. The attack comes on suddenly, and a physician should be sent for at once, especially if the patient is an old or feeble person. In rare cases the illness pursues an unfavourable course to a fatal ending. The vomiting and purging go on uncontrolled. The pulse grows feeble, the face becomes pinched, the surface cold and shrivelled, and death may take place in a very few hours. This disease presents, in most cases, the symptoms of very great disturbances of the nervous system, and frequently occurs in those who are exhausted from over-exertion, worry, or anxiety. It spares no age, but attacks with diminishing frequency the old, and less often women than men. It is extremely common and often fatal in infancy, and constitutes the disease called Cholera Infantum.

CHOLERA MORBUS, TREATMENT OF

In British cholera the question to be decided is usually this : have the vomiting and purging lasted long enough to expel the offending matters ? If so, they had better be stopped ; if not, something should be given to favour the expulsion of the irritants. Rhubarb and grey powder are perhaps the best things to be given, if laxative medicine is necessary ; a few drops (ten or so) of laudanum or sulphuric acid, or five grains of Dover's powder, or ten to fifteen grains of compound chalk and opium powder, will be best to stop the purging. Do not during the first few hours try to check the vomiting and purging : nature is in this way trying to get rid of an irritant ; but should the skin be cold and the pulse feeble, give a tablespoonful of brandy in a wine-glass of hot water. To relieve the pain, put a mustard poultice over the bowels, mixing it with hot water ; or wring out a flannel in hot water, sprinkle it with oil of turpentine, and apply. The turpentine will blister as soon as mustard and must be watched. Rub the legs vigorously if there is cramp, and keep the patient in bed, with hot bottles at the feet should these be cold. The attack is seldom fatal to adults, but is prostrating, and light nourishing food will be necessary after it—milk and rice gruel, strong broth, beef-tea, and eggs, if allowed, etc. The return to solid food must be gradual. Should the bowels not move readily, an enema of warm water and olive oil will probably be ordered. Ice or an effervescing drink will be best to allay sickness. Care must be taken that the ice is pure, and drinking water should come from a source that is above suspicion.

CHOREA, OR ST. VITUS'S DANCE.

(Greek, **chor′eia,** "dance").

This is a disease generally met with in children, but occasionally it occurs in adult life. The disorder is often dependent on a fright, the disease appearing in the course of two or three days afterwards, by twitchings of the arm and leg and the muscles of the face ; generally one side is more affected than the other, and sometimes the choreic twitchings are confined to one side. The twitchings of the muscles are worse when any one is observing them, or when the child is excited ; they always cease during sleep.

CHOREA, SYMPTOMS OF

Whoever has once witnessed the strange gesticulations and involuntary motion of a person labouring under St. Vitus's dance can never afterwards be at a loss to recognize the disease. The patient is usually a boy or a girl, of from five to fifteen years of age. The disease comes on gradually ; it shows itself at first by occasional jerks or involuntary motions of an arm or of a leg, and by occasional slight distortions of the muscles of the face. In a few days or weeks it is observed that the child walks unsteadily, that his gait is awkward, that, in advancing, one leg almost crosses the other, and that one or both arms are at the same time tossed about irregularly and involuntarily. In a majority of cases these irregular muscular contractions occur only in the limbs of one side, or at least most prominently on one side of the body ; and the distortions of the face are either confined to, or are most remarkable on, the same side. As the disease advances, the little patient has considerable difficulty in feeding himself, for, in lifting anything from the table and raising it to his mouth, the action is irregular, and the motion consequently not in a straight line ; the spoon or fork misses the mouth, or the fluid from the cup is spilt, and it is not till after many vain attempts that the object is at last attained. These involuntary movements, however, may, in some cases be arrested for a short time by fixing the patient's attention on some interesting object, and they usually cease altogether during sleep. From the beginning of the complaint the general health is impaired and, as it advances, the patient grows pale and thin ; the appetite is precarious, or altogether fails ; the temper becomes fretful, the usual animation disappears, and the child becomes indifferent to its customary sports. Should the proper medical treatment not be adopted, worse consequences may sooner or later ensue, for patients thus neglected are sometimes seized with paralysis or epilepsy, and at other times they sink gradually into a state of idiocy. In most cases the appetite is not affected, nor does the general health seem much impaired ; there is, as a rule, no fever, and generally a recovery may be looked for. In a few other cases of somewhat rare occurrence, the twitchings are so violent that the elbows, knees, and hands become sore and abraded by constantly striking surrounding objects ; there may be fever, delirium, and sleeplessness ; these are signs of grave importance, and are usually associated with heart disease, or follow an attack of rheumatic fever.

CHOREA, TREATMENT OF

Chorea is a very curable disease in ordinary cases. Early treatment is always advisable, and it should consist in taking a cold bath every morning, to be followed by friction with a rough towel ; tonics are of service, and more especially those containing arsenic. A simple but nourishing diet should be given, and a certain amount of outdoor exercise taken daily. For those cases in which fever and delirium are present, rest in bed, sedatives to allay the sleeplessness, and a fever diet are desirable. It is important to observe that the disease can be contracted through mimicry. A nervous child who is placed with a choreic subject will, in time, gradually and unconsciously copy the movements and grimaces of the latter and end by acquiring a genuine attack. This shows the necessity of sufferers from chorea being withdrawn from the society of children.

CHRONIC RHEUMATISM

(Greek, **chron′ikos,** from **chron′os,** " time " ; **rheu′ma,** " watery discharge ").

Chronic rheumatism is quite a different affection from acute rheumatism, or rheumatic fever, since acute rheumatism may pass into the chronic stage ; but most frequently the one is quite independent of the other. Most old people, especially if they have led a life of exposure and fatigue, are more or less affected with rheumatism, sometimes so far as completely to cripple them. The constitutional disturbance is slight, but the pain is sometimes great, both night and day, so as to wear out the patient by continual harassing. Some cases of this form of rheumatism do not suit well with heat, the pain being worse at night in bed ; but most of these cases are better for heat, and friction especially. If the patient has any syphilitic taint, as is sometimes the case in the worst instances, the pain at night may be terribly harassing. Some special forms of chronic rheumatism have acquired distinctive names. Thus there is a chronic affection of the loins we call lumbago. This is almost always aggravated by movements. Stiff-neck, such as occurs after exposure to a draught of cold air, is another sample of chronic or sub-acute rheumatism, attacking a special part. Myalgia is the name given to pain in the muscles not due to rheumatism, and to be distinguished therefrom. Myalgia is not unfrequently found localized in the side, and there a kind of rheumatic pains is also ordinarily situated. It is of importance to distinguish the one from the other, as the treatment of the two is different.

CHRONIC RHEUMATISM, TREATMENT OF

Chronic rheumatism must not be treated by rote ; each case must be dealt with on its own merits. We must try to improve the general health, and to procure the patient sound rest by sedatives if necessary. Multitudes of remedies have been tried, and some do better than others if the cases are properly selected. In most of them iodide of potassium, with bark and cod-liver oil, is the most important remedy. The sulphur waters of Harrogate and Aix are good in many cases. Hot alkaline baths are, however, as a rule, preferable. Iodine painted on the affected joints sometimes does good, but not so much as hot alkaline lotions. Sulphur does good to many. Hot fomentations followed by rubbing with turpentine and acetic acid, or other stimulating liniment sometimes afford great relief. All should wear flannel and be careful in their diet, which should contain a large proportion of fatty articles. Beer, porter, and full-bodied wines should be prohibited.

CICATRIX

A wound or sore invariably leaves, after healing, a distinct mark upon the skin. This mark is called a cicatrix, or scar. It is of a pale pink or white colour, is made up of firm gristly material, and is covered by a transparent, smooth, and shining layer of cuticle. The appearances of cicatrices vary immensely, according to the part of the body on which they are seated, and the nature and depth of the wound or ulcer from which they have been developed. The scars from burns, scrofulous sores and malignant or lupoid ulcerations have each their special character. After a sore has healed, the resulting cicatrix loses its ruddy or pink colour and becomes whiter ; as it gets older it glides more freely over the tissues beneath and at the same time becomes smaller in superficial extent, drawing upon the neighbouring soft parts, so as to produce, in some instances, much distortion and deformity. Scars frequently become diseased. They are sometimes the seat of severe pain, which is more intense in damp, cold weather. Obstinate ulceration and occasionally cancer are met with in the seats of old wounds.

CIRCULATION OF THE BLOOD

See BLOOD, CIRCULATION OF THE.

CIRRHOSIS OF THE LIVER

See LIVER, CIRRHOSIS OF THE.

CISTERNS, CLEANING OF

The best cisterns for water are those that are made of slate and galvanized iron. Zinc cisterns, or wooden cisterns lined with zinc, are next to useless, as the metal is soon perforated in parts by the action of hard water containing much chalk or lime. Lead cisterns are durable, and this is the best that can be said of them. In cleaning lead cisterns great care should be taken. The case is on record of a lady who instructed her coachman to clean out the cistern of the house. He, wishing to make a good job of it, got a bath-brick and a hard scrubbing-brush, and got into the cistern, boots and all, and brushed away till he could almost see his face reflected from the lead. The water, which was then introduced, came in contact with the bright lead, and immediately began to dissolve away the metal and acquired poisonous properties. Lead should always retain its natural skin ; and if you will clean out your cistern properly, use the softest hearth-brush you can get. Let the water flow away and move about this soft brush so as to stir up the sediment ; then let the whole of the remaining water go. Finally admit the water from the main, having previously opened the taps at the sink and in the bathroom, and let the whole of the water-pipes be thoroughly flushed for several minutes. The taps may then be turned off and the cistern allowed to fill again. Water is also liable to be contaminated when put into pails which are not properly cleaned. No doubt in many small houses we can only hope to have the water supplied in pails, but we fear it is a very common thing for washing-water and slops to be taken out in the pails, after which they get a little rinse out, and then pure water is poured into the same pails and taken into the house.

CLASSIFICATION OF DISEASES

Every disease has its own particular name, and as our knowledge increases year by year, fresh names are added to signify either new complaints or fresh groups of symptoms. It is obvious that some diseases are more closely allied than others ; thus all those disorders which are accompanied by a high temperature are called fevers ; these again are divided into those which are catching and those which are not. Some diseases are caused by the presence of parasites, others by accident or design. To arrange diseases according to any precise plan is, however, extremely difficult ; if we knew accurately the causes of every disease, some scientific arrangement might be carried out ; but our knowledge on this point is yet very imperfect. Then, again, there are many " causes of death " registered which are not diseases at all, but symptoms. Convulsions and diarrhœa, debility and wasting, are examples of this kind ; the true cause of death is really the cause of these symptoms, if in all cases it could be ascertained. The following nomenclature has been long in use, and is well adapted for its purpose. In it all diseases are divided into five great classes, and these in their turn into orders, while under each order are placed the diseases as known by their general name.

Classes.	Orders.	
I. Zymotic diseases.	1. Miasmatic diseases . .	Small-pox, measles, scarlet fever, diphtheria, quinsy, croup, whooping cough, continued fever (comprising typhus, typhoid, and simple continued fever), erysipelas, puerperal fever, carbuncle, influenza, dysentery, diarrhœa, cholera, ague, remittent fever, rheumatism, and other zymotic diseases.
	2. Enthetic diseases. . . .	Syphilis, stricture of urethra, hydrophobia, glanders.
	3. Dietetic diseases	Privation, want of breast-milk, purpura, scurvy, alcoholism.
	4. Parasitic diseases . . .	Thrush, worms, parasites, etc.
II. Constitutional diseases.	1. Diathetic diseases . . .	Gout, dropsy, cancer, cancrum oris, mortification.
	2. Tubercular diseases . . .	Scrofula, consumption, hydrocephalus.
III. Local diseases.	1. Diseases of nervous system .	Apoplexy, paralysis, chorea, epilepsy, convulsions, brain diseases, etc.
	2. „ organs of circulation .	Pericarditis, aneurysm, heart disease, etc.
	3. „ „ respiration.	Bronchitis, pleurisy, pneumonia, asthma, etc.
	4. „ „ digestion. .	Gastritis, peritonitis, ascites, hernia, intussusception of intestines, etc., jaundice, diseases of stomach, liver, and spleen.
	5. „ urinary organs . .	Nephritis, Bright's disease, cystitis, kidney disease, etc.
	6. „ organs of generation	Ovarian and uterine diseases, etc.
	7. „ „ „ locomotion	Synovitis, arthritis, and diseases of the joints, etc.
	8. „ integumentary system	Phlegmon, ulcer, diseases of skin, etc.
IV. Developmental diseases.	1. Diseases of children . . .	Premature birth, cyanosis, malformation, spina bifida, etc.
	2. „ adults . .	Child-birth.
	3. „ old people . .	Old age.
	4. „ nutrition . .	Atrophy and debility.
V. Violent deaths.	1. Accident or negligence . .	Fractures, contusions, gun-shot wounds, cuts, stabs, burns and scalds, poison, drowning and suffocation, etc., by accident or negligence.
	2. Homicide	Murder and manslaughter (Homicide).
	3. Suicide.	Suicide by any method.
	4. Execution.	Hanging (Execution).

CLASSIFICATION OF FOODS

In order to acquire some notion of the various kinds of food, and the purposes they supply in the system, the following arrangement will be useful :—

Classification of Food

Class I.—Alimentary or Necessary Food.

Group 1. Mineral.

Examples : water, salt, saline constituents of plants and animals.

Group 2. Carboniferous, respiratory, heat and force-giving.

Examples : starches, sugars, fats and acids.

Group 3. Nitrogenous, nutritious or flesh-forming ; proteids.

Examples : albuminous compounds, fibrine of meat, casein of milk.

Class II.—Accessory Food.

Examples : cellulose, gum, gelatine.

Class III.—Medicinal or Auxiliary Food.

Group I. Stimulants.

Examples : alcohol, volatile oils.

Group 2. Neurotics.

Examples : tea, coffee, tobacco, opium.

CLAVICLE

(Latin, **cla′vis,** "key," because the shape of the bone resembles an ancient key).

The clavicle, or collar bone, extends from the upper part of the breast bone to the point of the shoulder. This bone is very liable to fracture from falls on the shoulder. Its chief use is to prevent the arms from falling forward in front of the body ; and hence it is wanting in the lower animals, whose superior extremities are much closer to each other than those of man.

CLEANLINESS IN THE SICK-ROOM

Without scrupulous attention to cleanliness in the sick-room all that has been accomplished by ventilation will prove useless ; for what amount of air must be hourly passing in at the windows to compensate for the accumulation of dirt and filth in a room ? To ensure cleanliness, there must be order ; everything should have a place of its own and, unless in use, should be kept in it. Unused articles of food and soups of every kind should be removed from the sick-room.

Bedding.—In regard to bedding, the utmost cleanliness must be observed and, in order to render this easier, the iron bedstead and light hair mattress will be found superior to anything else that can be made use of.

Carpets.—The sick-room in which there is no carpet is likely to be the cleanest, being free from those organic impurities which store themselves up in its substance ; but, unfortunately, in most private houses the sick-room is carpeted, and we have to consider how the process of sweeping can be best accomplished, in order that as few of the impurities retained in it shall reach the patient as possible. This can be best done by sweeping with a soft hair broom, taking care to move the dust gently before it, and not raise it in clouds about the patient ; but the only way in which a carpet can be really "cleaned" is to take it up every quarter or half-year. However, as soon as the doctor's diagnosis shows that the disease is of an infectious description, the carpet should be at once quietly and expeditiously lifted. It would, in point of fact, be well to lift it should the disease be sufficiently serious to require the medical man's care, without reference to the character of the complaint. At all events the doctor's opinion might be invited. Should the floor of the sick-room be uncarpeted, it can be done over with sponges, wrung out of hot water, and dried by means of floor-brushes. Damp cloths may be used instead of sponges. The floor of the sick-room may be washed if the patient is able to be removed to another room. This must not be done on a damp day as the room should be perfectly dry, and free from all traces of damp before the patient comes into it again. By this means the sick-room can be kept clean.

Furniture.—The articles of furniture should also be dusted by means of damp cloths, otherwise the dust is only dispersed throughout the room, to fall again shortly on the patient and articles of furniture alike.

Walls and Wall-Papers.—The walls best suited to the sick-room are those which have been painted or those which have been whitewashed with lime. Papers on the walls act as dust-traps and, unless they are removed and the walls scraped from time to time, are apt to act injuriously on the sick. There are many papers which, besides acting injuriously by retaining dust and germs of disease, are themselves sources of poison to human beings. Such are the papers which owe their colour to arsenic.

CLEANLINESS, PERSONAL, IN THE SICK-ROOM

Among the poorer classes especially, the want of regard for personal cleanliness in the sick is often witnessed to a lamentable extent ; but it does not confine itself to those alone. There is great dread in the minds of many that the changing of the bed linen in disease will prove hurtful to the patient. This, it need hardly be remarked, is altogether unfounded and, if properly done, the changing will always have a beneficial influence upon him or her. It is important in the time of disease, as in health, to have the hands and face washed daily and the hair carefully combed out, so as to allow free circulation of the air about the roots and keep the scalp cool. If this is neglected, the hair, especially the long hair of the female, will become matted from the retention of perspiration, and may require to be cut, if attention is not paid to it in time. Nor must the body be neglected. It should be frequently washed. A sponge or piece of flannel and tepid water should be used, and care must be taken to expose only a small surface at a time, which ought to be rapidly dried with a heated towel or piece of flannel. In the process of drying, much good will result from rubbing the part well. In acute diseases it is well to change the body linen every day ; it greatly adds to the patient's comfort. To ensure personal cleanliness on the part of the nurse, a bath once a day is essential. It is a good plan for a nurse to take a cold sponge-bath in the morning, and to wash thoroughly with warm water at night. A nurse should always have clean hands, especial care being taken to cleanse them thoroughly with a disinfectant solution, after dressing any wound.

CLEANSINGS

For about three weeks after delivery the lying-in woman has a discharge from the interior of the womb. This discharge, as it at first issues from the external parts, consists almost entirely of pure blood and in quantity is sufficient to soil about twelve napkins during the first twenty-four hours. The quantity gradually diminishes till about the fifth day, when it is only sufficient in amount to soil two. From being of a red colour, as at first, the discharge gradually grows paler, until it assumes a green colour, when it receives the name of the "green waters." When this stage is reached, the discharge has a disagreeable sickly odour. From being green in colour it comes to have the appearance of soiled water, which character it maintains throughout. As already stated, the duration of the discharge is generally about three weeks, but there are cases in which it continues a much shorter time without giving rise to any evil consequences. Especially is this the case in women who have been delivered of dead children, in some of whom it ceases after a few days without the woman suffering in the slightest degree. If, however, the discharge has been of ordinary amount and suddenly ceases, this circumstance must not be viewed indifferently, nor passed over as too trivial for notice. It should be at once attended to, as it may be indicative of a serious febrile condition setting in upon the woman. Should it therefore be found, on the cessation of the discharge, that the patient begins to exhibit symptoms of feverishness, increase of pulse, and general restlessness, the medical attendant should be at once communicated with, when proper means will be employed to establish the discharge again. While the lochial discharge, as the cleansings are also called, continues, the most scrupulous attention should be paid to cleanliness. The external parts should be bathed every five or six hours with tepid water, a soft sponge being used for the purpose. Attention to this cannot be too strongly insisted upon. Cleanliness now is absolutely necessary to ensure a safe recovery and those who neglect it cause a patient to run a very serious risk. It might indeed seem almost superfluous to insist on this, were it not a matter of every-day experience that there is nothing in regard to which people are more negligent; while amongst the poor, where the greatest necessity for cleanliness exists, least attention is paid to it. There are many who are deterred from performing these daily ablutions under the impression that the patient will suffer from the exposure. There need, however, be no scruple in the mind of any in regard to this, inasmuch as no exposure is necessary.

CLOT

a term used to express fluid matter thickened or coagulated as in clotted cream, which is thickened on coagulated milk, or rather the thicker fatty part of the milk separated from the thinner or watery part. It is specially applied to blood which has become thick or coagulated on exposure to the air.

CLOTHING IN OLD AGE

In old age, owing to the vital processes going on within the body being less, the power of generating heat is less, and the temperature of the body sinks. To compensate for this, the clothing should be warm; but, as far as possible, warmth should be combined with lightness, as heavy articles of clothing are apt to be a burden to the aged. The articles best suited, therefore, to this period of life, are those which are made of flannel, this material combining warmth with lightness, retaining heat and preventing the entrance of cold in a way that no other article of clothing does. In climates where there is incessant change in the weather, and where the body is almost daily subjected to great variation of temperature, nothing with which we are acquainted can enable the individual to stand these changes half so well as flannel. It should, therefore, always constitute a very important element of dress in those who are advancing or advanced in years.

CLUB-FOOT

Club-foot or talipes is a term implying an abnormal position of the foot or of its parts in its anatomical relations. Generally certain muscles, tendons and ligaments are contracted. The chief forms have been given special names, namely: one, pes valgus, in which the outer side of the foot is raised and the sole looks outwards; two, pes varus, in which the inner side of the foot is raised and the sole looks inwards; three, pes equinus, in which the heel is raised and the patient walks on the balls of the toes; four, pes calcaneus, in which the toes are raised and the patient walks on the heel; five, pes cavus, in which the arch of the foot is much increased; and six, pes planus, in which the arch of the foot is diminished, and the sole rests on the ground. Combinations of these forms frequently occur. Club-foot may be inherited or it may be acquired. Among the commoner causes of acquired club-foot are spinal disease, convulsions, inflammations or injury of the muscles or tendons, dislocations, strains, fractures and inflammation of the joints.

The treatment of the various forms of club-foot naturally varies very much in each case, and calls for the greatest skill and judgment. Skilled surgical advice should therefore be obtained at the earliest possible moment. In nearly all cases some appliance will be required, and in many cases an operation will be found necessary.

COAL DUST, INFLUENCE OF, ON LUNGS

The breathing of coal-dust in the process of mining changes the colour of the entire lung in a few years to jet-black. This blackening of the lung is not confined to colliers, however, for it is always found in post-mortem observations of adults, to some extent, in patches of lung-tissue and seems not to produce, ordinarily, any kind of disturbance. It is indubitable evidence of the amount of carbon in the atmosphere of towns and cities. There appears, however, to to be no doubt that, when in excess, it may injure a miner's lung, or, at all events, may aggravate other diseases. The ventilation of mines affords considerable relief to this evil.

COAL TAR, NATURE AND USES OF

Coal tar in almost any form in which it can be used is a powerful disinfectant. Where coal tar is distilled, it furnishes, first, a light oil which is a naphtha and, next, a heavy oil. This last is in great part composed of creasote, and contains also an acid known as carbolic acid. These two substances are among the most powerful of all known antiseptics, disinfectants, and deodorizers. Meat steeped for about twenty-four hours in a solution of one part of creasote to a hundred of water, is rendered incapable of putrefaction, and acquires a delicate flavour of smoke. It is, indeed, the presence of this principle in wood smoke which gives to the latter its characteristic smell, its property of causing the tears to flow, and its power of curing meat and fish. Disinfecting compounds manufactured out of coal tar or its distillates are extensively used. They are prepared mainly by mixing coal tar with sulphate of lime (gypsum) or fuller's earth in such proportions that the result will constitute a dry powder. This powder is wonderfully efficient in delaying the processes of decomposition, and in deodorizing and destroying all obnoxious effluvia. For use in chamber vessels, close stools, etc., the French make a very good fluid preparation, by mixing equal parts of coal tar, alcohol, and hot soft soap.

COCCYX

(Latin, **coc'cyx** ; Greek, **kok'kux**, " cuckoo ").

The name given collectively to four small bones constituting the termination or extremity of the human spine, being attached to the lower end of the os sacrum, or sacrum simply. It is said to be so called from its resemblance to the beak of a cuckoo. It is the rudimentary tail, but instead of projecting back, as in mammals generally, it is curved forwards, and is not visible externally.

COCOA

The substance known by this name is prepared from the seeds of a plant known to botanists as *Theobroma cacao*, a native of South America. The seeds, several of which are produced in a long pod are roasted before being used. When thus prepared, they are called cocoa nibs, and are sometimes boiled and made into a decoction in this form. More frequently, however, the seeds are crushed and made into a paste, and sold as " cocoa paste." When flavouring matters, such as vanilla, are added, the preparation is called " chocolate." Sugar is sometimes added to cocoa and always to chocolate when sold in the form of a sweetmeat, of which there are great varieties. Whilst cocoa differs greatly from tea and coffee in its composition, it nevertheless resembles them in possessing an alkaloid called theobromine, which acts in the same manner on the system as theine (tea). In addition to this substance cocoa contains a half-part by weight of a fixed oil or butter, which gives a very decided character to its action on the system. Cocoa also contains in every pound three ounces of flesh-forming matter, so that it constitutes a food at once heat-giving and flesh-forming, and admirably adapted to all the wants of the system. Cocoa as an article of diet is to be recommended in all cases where a nourishing and heat-giving diet is required, and with milk and sugar forms a very healthful food for breakfast or supper. The fat does not agree with some persons, and it is in these cases that an infusion or decoction of the " cocoa nibs " is recommended.

Good cocoa nibs contain :—

	In 100 parts.	In 1 lb.	
		oz.	grs.
Water	5·0	0	351
Albuminoid	16·9	2	314
Fat	51·1	8	70
Theobromine	1·3	0	104
Cacao-red	3·2	0	201
Gum, etc.	10·9	1	326
Cellulose and lignose	8·0	1	122
Mineral matter	3·6	0	252

Theobromine constitutes the active principle of cocoa ; the taste and aroma of cocoa are chiefly due to an essential oil and to tannin. For general use, cocoa will be found a milder and less stimulating beverage than tea or coffee.

COFFEE

The coffee berry is the produce of a shrub, indigenous to Arabia, but since cultivated in many of the warmer parts of the world. The effects of coffee on the system are well known. It exhilarates, arouses, and keeps awake ; it counteracts the stupor caused by fatigue, by disease, or by opium , to a certain extent it allays hunger gives increased strength and vigour to the weary, and imparts a feeling of comfort and repose. Its physiological effects on the system, so far as these have been investigated, appear to be that, while it stirs up the brain to greater activity, it soothes the body generally, makes the change and waste of matter slower and, as a natural consequence, the demand for food less, All these effects it owes to the conjoined action of three ingredients, very like those contained in tea. These are, a volatile oil produced during the roasting, a variety of tannic acid, which is altered during the roasting, and the substance called theine or caffeine, which is common to both tea and coffee. The composition of roasted coffee is in general as follows :—

	In 100 parts.	In 1 lb.	
		oz.	gr.
Water	5·0	0	350
Albuminoid	15·0	2	174
Theine (Caffeine)	0·7	0	43
Tannin	3·9	0	281
Minor extractives	34·4	5	219
Cellulose	38·5	6	62
Mineral matter	4·5	0	323

The addition of milk (which should always be hot) and sugar heightens the nourishing qualities of coffee, and in the morning renders it a more substantial article for breakfast. When taken after dinner to promote digestion, it should be without milk and, when the palate can be reconciled to it, without sugar. The action of coffee on the human system is due chiefly to the oil it contains, and consequently is greatest when roasted, but its extractive and also highly nitrogenous principle must exert considerable influence upon the organs of digestion. Coffee acts powerfully and peculiarly on the ganglionic system of nerves, and their ramifications, and all the organs which are supplied by them. It elevates the vitality of these nerves and quickens all their actions. The brain is likewise markedly acted upon by it, and hence the increased sensibility and greater energy of that organ during the use of coffee, and the removal of all sense of fatigue or disposition to sleep. In asthma strong black coffee is believed to have a beneficial effect in relieving the paroxysms. Upon this depends, in addition to its local influence on the organs of digestion, the utility of coffee in counterbalancing the effects of narcotic poisons, such as opium or belladonna, and the favour it has found among literary persons by enabling them to carry on their studies through the midnight hours without feeling oppressed by sleepiness. Excepting for some such specific purpose, however, its use late at night is undesirable, because of its tendency to promote sleeplessness. It greatly promotes digestion if taken after dinner, and also checks the disturbance of the digestive system arising from the too free use of wine. It excites the vascular system, and renders more powerful the contractions of all the muscles, both voluntary and involuntary. It fits the system, therefore, to resist the influences of cold and damp, and its use is decidedly advantageous for night travellers and the inhabitants of humid countries. In tropical climates it removes the languor which oppresses those who are exposed to excessive heat and helps the stomach to perform its functions.

COFFEE AS A DEODORIZER

Coffee is a powerful deodorizer ; it has instantly destroyed the smell of putrefying meat, and in half a minute it has permanently cleared a house of the effluvia of a cesspool. To use coffee for these disinfecting purposes, dry the raw bean, pound it in a mortar, and roast the powder on a moderately heated iron plate until it is of a dark-brown tint; then sprinkle it in sinks or cesspools, or lay it on a plate in the room which you wish to have purified. Nevertheless there are more efficacious deodorizers.

COFFEE, DISADVANTAGES OF

Coffee, although it possesses many qualities which recommend its use, is not without its counterbalancing disadvantages. For plethoric persons, and those who have a tendency to abdominal congestion, it is unsuited, and for persons subject to piles it is in general improper, as well as for females under certain states of their system. It is likewise hurtful to persons having a very excitable vascular system, being upon the whole more suitable for slender persons, or those advanced in life, than for the young or very robust. Coffee, like all stimulants when used to an injurious extent, gives rise to disturbances of the nervous system, particularly painful twitchings of the upper eyelid, to congestion or hæmorrhage, loss of digesting power, and obstruction of the liver and vena porta. Unlike the nervous symptoms caused by tea, the greatest number of these complaints subside or disappear on discontinuing the use of the strong beverage.

COFFEE, PROPERTIES OF

Coffee is credited with the possession of important medicinal virtue. The great use of coffee in France is thought to have abated the prevalence of gravel in that country. In the colonies of France, where coffee is very greatly used, as well as in Turkey, where it is the principal beverage, not only gravel but also gout is conspicuous by its absence. Professor James F. W. Johnston mentions the case of a gentleman who was attacked with gout at the age of twenty-five, and who had it severely till he was upwards of fifty, with chalkstones in the joints of his hands and feet; but the use of coffee, then recommended to him, completely removed the complaint. In order to detect the mixture of chicory in coffee, the simplest way is to place the powder in cold water. Chicory gives a coloured impression in the cold, which coffee does not, and the proportion of chicory may be guessed at by the depth of the colour. The presence of coffee in chicory is discovered by boiling the suspected mixture with quicklime, filtering, evaporating to dryness, adding sulphuric acid and peroxide of manganese, and gently heating, when golden yellow crystals of a substance called kinon will sublime, should coffee be present.

COLD AFFUSION

See AFFUSION, COLD.

COLD APPLICATIONS

Cold, when applied, must operate steadily, uniformly, and over a definite space. If the bag of ice or the cold cloths slip about as the feverish patient turns and twists, it is useless, perhaps harmful: if it is allowed to become warm before being renewed, it had better not have been applied.

(1) *Cold Cloths.*—Apply single folds of linen or cotton dipped in cold water and replace them by fresh cool ones before they become warm.

(2) *Cold Drip.*—Stand a pitcher of water on some bureau or table higher than the patient's bed. Put one end of a long strip of lint or

lamp-wick in the pitcher and lay the other across a cold cloth, which is applied to the inflamed part. A continuous little trickle of cold water is thus conveyed to the part and the water which passes from it must be caught in a basin on the other side.

(3) *Cold Drop.*—A bottle filled with cold water can be suspended above the bed sometimes, where there is a curtain ring in the ceiling, for instance, and a piece of lamp-wick half in half out, and made to hang just over the part to which cold is to be applied. A constant drop of cold water is thus secured. Care must be taken that the water is conveyed into a basin and not allowed to soak the bed. This cold drop is more easily used with a wounded arm or leg, which can be placed in a trough made of indiarubber cloth and sloping towards a basin or pail. An excellent fixture for applying continuous cold consists of a rubber bag with a flexible tube at either end—one being attached to a faucet or water-cooler and the other hanging over a pail. The bag, through which a stream of cold water is passing, is applied where desired, having between it and the part a damp cloth.

(4) *Ice.*—Ice may be broken up into pieces and put into a bladder, or an indiarubber ice bag. The bladder should not be more than half full and should be securely tied around the neck. The best way of applying ice to the head is to place a smooth piece of ice, two or three inches long and about one and a half broad, in a cup of soft sponge and pass it round over the head. The sponge absorbs the water and the pain of the cold is avoided.

(5) *Ice-bags.*—Put pounded ice with a little water into a thin bladder or indiarubber bag. The water remains cold until the last bit of ice is melted ; renew before this. By these bags, continuous cold is secured and no danger from frost-bite need be apprehended. Ice can be easily pounded by wrapping it tightly in one end of a thick cloth and then slinging the cloth with force against a stone hearth. Do not fill the ice-bag full ; half-filled, it adapts itself better to the heated part.

COLD BATH

See Bath, Cold.

COLD, CAUSES OF

A common cold is one of the most frequent complaints in the United Kingdom, and is often attended with very serious effects. It may, therefore, be as well to give a few rules for avoiding it. It should be observed that a cold is generally produced by the person going from the external cold air into the warm air of a heated room. When a person, in cold weather, goes into the open air, every time he draws in his breath, the cold air passes through his nostrils and windpipe into the lungs, and consequently diminishes the heat of these parts. As long as the person continues in the cold air, he feels no bad effects from it ; but as soon as he returns home, he approaches the fire to warm himself and very often takes some warm and comfortable drink to keep out the cold, as it is said. Now, this is the very way to fix a cold in the head and chest, because of the sudden transition effected in the temperature of the parts by the incautious use of heat. The person who follows this practice soon perceives a glow within his nostrils and breast, as well as over the whole surface of the body, which is succeeded by a disagreeable dryness and huskiness felt in the nostrils and breast. By and by a short, dry tickling cough comes on and he feels a shivering, which makes him draw nearer to the fire, but all to no purpose ; the more he tries to heat himself, the more he becomes chilled. It should, therefore, be a rule with everyone, when they come out of a very cold atmosphere, never to go at first into a room that has a fire in it, or, if they cannot avoid that, to keep for a considerable period at the utmost distance from it and, above all, to refrain from taking warm or strong liquors for some time. This rule is founded upon the same principle as the treatment of frost-bitten parts. If they were brought to the fire, they would soon mortify ; whereas, when they are first rubbed with snow and brought to their natural heat gradually, no bad consequences follow. Hence, if the rule were strictly observed when the whole body, or any part of it, is chilled, of bringing it to its natural feeling and warmth by degrees, the frequent colds experienced in winter would, in a great measure, be prevented. Those who are much subject to colds are, for the most part, those who are weakly, and to such we would strongly recommend the diligent use of the flesh-brush to the neck and chest, hands and feet, twice a day, combined with much active exercise in the open air. Few indeed are the constitutions that these practices will not harden and fortify. Another common cause of taking cold is the laying aside of warm, especially of flannel, underclothing, heavy cloth overcoats, etc., too early in the spring, before the wintry weather has entirely gone. Damp articles of clothing, particularly wet shoes and stockings, are probably among the best friends that doctors and druggists ever had. A greatcoat must be kept in a room where there is a fire. If it has been hung up in a cold, damp hall, as it often is, it will contribute about as much to your heat as if you wrapped a wet blanket about you. The evil results from wet feet may often be diminished, or entirely averted, by taking off the damp shoes and stockings, rubbing the feet dry and toasting them before the fire, and afterwards putting on dry, well-warmed stockings and shoes as thick as or thicker than those laid aside. To be effectual, however, the procedure must be gone through at once, without waiting to become rested enough, after fatigue, to make the additional exertion easy ; even a delay of five minutes may be sufficient to annul all benefits from such a drying process and permit the occurrence of congestion of some internal organ which may lead to serious or fatal illness.

COLD, DRY PLAN OF CURE FOR

Dr. J. C. B. Williams recommended a dry plan of cure, of the efficacy of which he had a high opinion. It has the merit of simplicity, for it consists merely in abstinence from every kind of drink ; no liquid, or next to none, is to be swallowed until the disorder is gone. He allows, without recommending it, a tablespoonful of milk or tea for each of the morning and evening meals, and a wine-glassful of water at bed-time. One great advantage of this plan is that it does not require confinement to the house. The man whose business calls him abroad may, with appropriate clothing, pursue his customary employment, and his cure be going on all the while. In fact, exercise, inasmuch as it promotes perspiration, helps the recovery. Dr. Williams observed that while this treatment was serviceable in catarrhal bronchitis, it was most serviceable in the snivelling cold in the head. It must be put in practice at the very beginning of the disorder.

COLD, EFFECT OF, ON BLOOD-VESSEL

One of the most unfavourable effects of cold is the driving of a great part of the blood out of the little blood-vessels which run everywhere just beneath the surface of the skin, as a mere mechanical result of its contracting and constricting influence. Of course, as this blood, which is driven away from the surface, must have some place to go to, it flows inwards to the warm parts of the body, which the external cold has not reached, as a necessary consequence filling them too full of blood, or, as it is technically called, congesting one or more of the vital organs. Whichever of these happens to be our "weak spot" (and there are few of us who can boast of being entirely free from any imperfection of this kind) is, of course, the least apt to recover promptly from the temporary congestion so produced and equally, of course, the most liable to become the seat of a serious inflammation, of which congestion is the first stage. If, for example, a man's lungs are his weak point, inflammation of the lungs, called also lung-fever and pneumonia, running on, if neglected, to consumption, may be the result; or should his intestines be least able to resist an attack of disease, a more or less severe diarrhœa is often the direct consequence of exposure to cold. The most dangerous times for us to risk sudden cooling of the surface of the body are, 1st, during sleep; 2nd, when perspiring after violent exertion, or from other causes; and 3rd, soon after taking a warm bath. A majority of us, indeed, can probably trace most of our coughs and colds to want of sufficient care in these respects.

COLD FEET AND SLEEPLESSNESS

It is always hurtful and sometimes dangerous to go to bed with cold feet, which is often the case with persons even in good health, who have been on their feet a great deal during the day. On removing the shoes at night, the cooler air condenses the perspiration of the day, causing a clammy dampness and the feet soon become icy cold, thereby preventing sleep. "The association between cold feet and sleeplessness," says a writer in the *British Medical Journal*, "is much closer than is commonly imagined. Persons with cold feet rarely sleep well, especially women. Yet the number of persons so troubled is very considerable. We now know that if the blood supply to the brain be kept up, sleep is impossible. An old theologian, when weary and sleepy with much writing, found that he could keep his brain active by immersing his feet in cold water: the cold drove the blood from the feet to the head. Now what this old gentleman accomplished by design is secured for many persons much against their will. Cold feet are the bane of many women. Light boots keep up a bloodless condition of the feet in the day, and in many women there is no subsequent dilatation of the blood-vessels when the boots are taken off. These women come in from a walk, and put their feet to the fire to warm—

the most effective plan for cultivating chilblains. At night they put their feet to the fire and have a hot bottle in bed. But it is all of no use; their feet still remain cold. How to get their feet warm is the great question of life with them—in cold weather. The effective plan is not very attractive, at first sight, to many minds. It consists in first driving the blood-vessels into firm contraction, after which secondary dilatation follows. See the snow-baller's hands: The first contact of the snow makes the hands terribly cold, for the small arteries are driven thereby into firm contraction and the nerve-endings of the finger-tips feel the low temperature very keenly. But, as the snow-baller perseveres, his hands begin to glow; the blood-vessels have become secondarily dilated and the rush of warm arterial blood is felt agreeably by the peripheral nerve-endings. This is the plan to adopt with cold feet:—They should be dipped in cold water for a brief period; often just to immerse them and no more is sufficient; and then they should be rubbed with a pair of hair flesh-gloves, or a rough Turkish towel, till they glow, immediately before getting into bed. After this a hot-water bottle will be successful enough in maintaining the temperature of the feet, though without this preliminary it is impotent to do so. Disagreeable as the plan at first sight may appear, it is efficient; and those who have once fairly tried it, continue it and find that they have put an end to their bad nights and cold feet. Pills, potions, lozenges, 'nightcaps,' all narcotics, fail to enable the sufferer to woo sleep successfully. Get rid of the cold feet and then sleep will come of itself."

COLD IN THE HEAD

Coryza, or cold in the head, is produced in some persons by the emanations from certain animals, as the horse, or from certain flowers, as the rose, or drugs, as ipecacuanha. This form is usually of a very transient nature, though often quite severe. It is closely allied to hay fever. Some drugs administered internally, as iodide of potassium, occasion similar symptoms. A cold in the head is a minor hardship of life at any season, but a summer cold is a hardship indeed. It is as easy to catch and a great deal harder to get rid of, being kept up by the slightest puffs of air upon an over-sensitive skin, on the one hand; and, on the other, by the local irritations of dust, the perfume of flowers, the pollen of plants and other substances suspended in the air, which are either not present at all, or to a very much less extent at other seasons of the year. Many influences of this kind, not potent enough to occasion the affection acting alone, are certainly agents in prolonging it when fairly established. The popular opinion that this kind of cold is apt to last longer in summer is based upon correct observation.

COLD IN THE HEAD, TREATMENT OF

Whilst it is not to be advised that persons suffering from a cold in the head should neglect it, it is candid to say that it is an affection which cannot always be cut short by treatment. In ordinary circumstances, the symptoms being moderate in intensity, no very active treatment is called for, the most useful agents being those of a tonic character and particularly repose. Quinine, from its known influence in dispelling local congestion, is, when judiciously used, of great advantage ; so also are minute amounts of opium, both locally and internally ; small, frequently repeated doses of carbonate of ammonia are highly recommended. If the secretion be excessive and long-continued, astringents are advised ; but they are, in our opinion, of questionable value. But those are not tools to be taken rashly into untrained hands. Measures tending to the promotion of sweating are not always beneficial nor without risk and had better be avoided, except at the very outset of the trouble. In the earliest stages, such old-fashioned, time-honoured and honourable remedies as a hot mustard-foot-bath, hot sleeping draughts, or the like, taken with a view to provoke abundant sweating, are excellent : but they must be taken at the beginning to do the good they are capable of : and it is not to be forgotten that harm may come of imprudent exposure next morning. A plain, nutritious diet, but sparing consumption of fluids, attention to ventilation and temperature and to the weight and warmth of clothing required are common-sense precautions.

COLD, KEEPING OUT THE

For persons who are apt to suffer from exposure nothing is so injurious as the use of spirits to keep out the cold. The effect of alcohol taken in cold weather is simply to deaden the sensibility of the body to the feeling of chilliness, and temporarily to accelerate the circulation, which leads people to fancy that they are being "warmed." But then there follows reaction, during which the circulation is depressed and warmth diminished. If exposure is continued until this period arrives, the effect of it, of course, is doubly dangerous. Hot coffee and tea have long been known as the safest of all warming winter beverages for men constantly working out of doors. A good stimulant of a ready kind for fatigue is one of the advertised brands of beef extract, or other form of beef-tea ; strong coffee or strong tea are also suitable.

COLD, SIMPLE CURES FOR

Most persons have their own particular remedy for the cure of cold. One person will wrap the head on going to bed in a flannel nightcap and take a glass of warm negus, whey, or gruel ; another will take a tumbler of cold water with or without a spoonful of sal volatile. A very good way to stop a catarrh on its appearance is to go to bed early, to take some warm drink, with a teaspoonful of paregoric elixir and a mild aperient pill, half an ounce of Epsom salts, or a Seidlitz powder early on the following morning. As a general plan an abstemious diet should be observed and diluent drinks, as barley water, whey, etc., freely taken. A mild aperient should be administered, as a dose of compound senna mixture, followed by a dose of saline mixture with antimonial wine and nitre, if the patient be of an inflammatory habit ; otherwise the saline draught with ipecacuanha wine every three or four hours ; and at bed-time, a spoonful of paregoric mixture added, or five grains of Dover's powder may be taken, and the legs bathed as high as the knees in warm water for ten minutes. Should the catarrh be severe, with much mucous discharge from the nose and eyes, it is better to remain in bed, but not to keep the apartment too warm, or to be wrapped in too much clothing, as although it may accelerate the cure of the cold, it will increase the susceptibility, and render the person more liable to a recurrence of the attack. If any one has a bad cold, great good will be done by a Turkish bath, a Russian bath, or an ordinary warm bath ; but an "old woman's bath" will do as much good, costs less, is universally available and is attended with no danger, there being no need of going out of doors for some hours, thus avoiding the risk of taking cold. The last bath named is an old-fashioned "sweat," brought about by being tucked up in bed in warm blankets and drinking hot tea, until a most profuse perspiration is induced and kept up for hours. Even after one has been careless or foolhardy enough to run the risk of taking a severe cold, he can often escape the effects of his rashness by removing all damp clothes as quickly as possible, soaking the feet for ten minutes in hot mustard water, applying a large mustard plaster to his back and covering up well with warm blankets in a warm room, so as to produce free perspiration. The flow of perspiration from the skin in such circumstances is much promoted by drinking one or two cups of hot tea—camomile tea, for example ; and such home remedies, if thoroughly and above all promptly adopted, will often prevent a serious illness. An excellent prophylactic against taking cold, and a means of counteracting the ill effects of cold when taken, is to be found in taking from 5 to 10 drops of spirits of camphor on a piece of loaf sugar every two or tree hours, until the sensation of chilliness is checked. An occasional dose is sufficient as a prophylactic. In cases of cold, also, if it can be managed, especially when taking spirits of camphor, it is useful to lie in bed for one day at all events, and longer if necessary. "By raising the temperature of my room," said Dr. Kitchiner, "tc about 65°, taking a full dose of Epsom salts and a broth diet, and retiring to rest an hour sooner than usual, I have often very speedily got rid of colds." All medical writers agree that a cold must be broken up within the first forty-eight hours, or it will run its course. It has been recommended that as soon as a person discovers he has taken cold, he should shut himself up in a room of uniform temperature, drink warm drinks, bathe his feet in hot water, and take four compound cathartic pills at bedtime, and a drachm of Epsom salts in the morning. He should also leave off animal food for a few days ; and if the chest be painful, apply a common pitch or porous plaster. Another school of medical men advise active exercise in the open air, sufficient to produce perspiration ; abstinence from food, or not to eat anything except a piece of dry bread for breakfast and dinner, and nothing for supper ; and liberal indulgence in cold water, drinking at least two tumblers on going to bed and on rising in the morning. They believe that the old saw, "stuff a cold and starve a fever," has been a source of infinite mischief. As food makes blood and blood makes phlegm, the more food the more phlegm, which is often the cause of most harassing coughs. It is believed that a cold may be broken up almost infallibly, if the person, as soon as he discovers the premonitory symptoms, will abstain from food for, say, thirty-six hours, go to bed in a warm room, wrap up well, and drink hot tea or other non-intoxicant. Dr. Hill thinks the majority of colds are taken "by cooling off too quickly after exercise." Persons exercise until a perspiration is produced, and then seek a cool seat or a pleasant breeze. The wisest and safest plan, after exercise, is to go into the house, shut the windows and doors, keep hat and coat on, and wait until there is not the slightest perspiration seen on the forehead or felt on it with the hand. If people who have been exposed to cold or wet throughout the day would bathe their feet and hands in warm water at night, they would escape many colds and fatal diseases. Make it a constant study during all seasons of the year and at all hours of the day and night, to guard against even an instant's feeling of chillness ; this simple precaution would prevent three-fourths of the coughs, colds, and pneumonias which afflict and destroy the race.

COLIC

(Greek, **kol'ikos,** "pertaining to bowels," from **ko'lon,** "great intestine").

Colic is a griping pain in the bowels, chiefly about the navel, often accompanied with a painful distention of the whole of the lower region of the bowels, with vomiting, costiveness and spasmodic contraction of the muscles of the abdomen. There are several varieties of this disease, the principal of which are the stercoraceous colic, or iliac passion ; the Devonshire, or painter's colic ; the flatulent colic ; and the constipative colic. The causes and treatment are, for the most part, the same in each variety.

Causes.—The complaint is produced by various causes, such as unripe indigestible fruits ; long-continued costiveness ; cold beverages on a heated stomach ; catching cold in the feet or bowels ; violent purgatives ; worms ; calculus or other concretions formed in the intestines ; transferred gout or rheumatism. The cause of the painter's colic is invariably the poisoning of lead received into the system, from exposure to its fumes, or from taking it internally, as is sometimes done by persons who drink impure wine or cider.

Treatment.—As a rule, the painful conditions of colic are signs of intestinal disturbance which necessitate some opening medicine, of which, for this purpose, castor oil is the best. An ounce may be given with a few drops of laudanum—not more than ten—or a little spirit of chloroform. Should the pain be severe, a turpentine fomentation may be applied to the belly. Indeed, it is always safe to apply heat to the seat of the pain, the sooner the better. The immediate use of the hot-water bottle—the patient meanwhile having stripped and retired to bed, no matter what the time—may avert further pain. One of the most distressing symptoms is the constant desire to evacuate the bowels and the fruitlessness of every effort made to do so. It may be necessary to administer a suppository *per rectum.*

COLLAR-BONE, FRACTURE OF THE

In fracture of the collar-bone, it almost always happens that one of the fractured ends slips over and rides on the other, in which case the nature of the accident is at once apparent. In this accident the shoulder becomes flattened, and the arm being drawn in towards the side of the chest causes a lessening of the axilla to take place. Special apparatus used in the treatment of fracture of the clavicle has for its object to brace the shoulders well back and retain them in this position.

COLON

The colon is all that part of the large intestine which ascends from the cæcum to the upper part of the abdominal cavity, runs across the top of the abdomen, and descends on the left side to the pelvis, where it terminates in the rectum. These three divisions of the colon are known as the ascending colon, the transverse colon, and the descending colon. Several physiologists have supposed that the colon performs some other function than that of a mere recipient of material. Sir G. Home imagined that it formed fat—a hypothesis which would have received some slight support from the fact that the fattest animals have generally the largest colons, did we not know that persons have lived and enjoyed good health for many years with an artificial anus formed by the cæcal extremity of the small intestines, which sufficiently proves that the large intestines are not essential to the maintenance of life.

COLOSTRUM

See NURSING, FIRST STAGE

COLOUR-BLINDNESS

Among the remarkable phenomena connected with vision is that of an inability to distinguish certain colours and shades of colours, which investigation has proved to be much more frequent than was suspected. John Dalton, the celebrated chemist, published an account of his infirmity in this respect, and the name of Daltonism was for a long period given to it. People are colour-blind when their retina will not perceive some of the rays of light. Light is made up of the three primary colours, which when overlapping in the spectrum are known as the colours of the rainbow. When mixed, white light is produced ; now, each colour has a different velocity, light being supposed to be made up of imponderable particles travelling at a vast speed through space. The eye can only see those colours which have a certain velocity, and in ordinary persons these colours are red, blue, and yellow, with their compounds —green (blue and yellow), orange (red and yellow), and purple, or violet (red and blue). In some cases the retina may not be able to see one or other of these colours. The bluish tinge seen in solutions of quinine and horse-chestnut is called fluorescence, and is due to the fact that extra rays of the spectrum are then made visible to the human eye.

COLOUR-BLINDNESS, CAUSES OF

Colour-blindness is the inability to distinguish certain colours. The most common form of colour-blindness is that in which red is deficient. It is, as we have said, frequently called Daltonism, because first carefully described by John Dalton, who was himself a subject of it. He was a strict Quaker, and when he was about to be presented at Court, it was thought by his friends that it would be impossible to induce him to wear the scarlet robe in which custom demanded that a doctor of civil law should appear. But it seemed to him like a harmless grey, and finding it comfortable, he persisted for several days in wearing it about the streets of London, surmounted by a broad-brimmed hat, and with drab pantaloons peeping out from beneath it. Colour-blindness is sometimes produced by disease, but usually exists at birth and is often hereditary. It will be readily understood that in many occupations it is a serious disability, and as the subject of it is frequently unconscious of the defect, the eyes should always be tested before such occupations are undertaken. Some otherwise excellent artists have been spoiled by it. It is a matter of grave importance in the case of seamen and of engine-drivers, and has attracted much attention in this connexion all over the world. A green light at night marks the "starboard," right-hand, side of a vessel, and a red light the "port" side; while a red light on railways is the signal for danger. A colour-blind pilot or look-out has no means of knowing, on a stormy night, whether a vessel that he must pass is steering to the right hand or to the left; and a locomotive engineer, who cannot distinguish between red and green, does not know the difference between danger and safety to the hundreds of passengers whose lives are in his hands. In order to avert the possibilities of catastrophe the sight of engine-drivers, pointsmen, signal-men and others employed in serious callings in which colours are employed is tested before their services are utilized. This is the only trustworthy safeguard, and it should be resorted to periodically so as to cope with any possible defect arising since the first examination.

COLOUR-BLINDNESS, PREVALENCE OF

This defect is much more frequent than is commonly supposed. Of a large number of men examined in Europe and America, four or five per cent. have been found colour-blind. Women enjoy, comparatively, a singular immunity. Drs. Cohn and Magnus found only one colour-blind among 2,318 school-girls tested in Breslau, and Dr. Jeffries found only two among nearly 2,000 women and girls examined at Boston. As the crystalline lens grows dense with age, particularly if there is beginning cataract, a yellow tinge often takes the place of its natural colourless transparency. This must partially impair the perception of the complementary colour, blue, to the extent, at least, of requiring a deeper tinge to produce a given effect. Liebreich, therefore, when lecturing on the artists, Turner and Mulready, took the ground that the excessive blue in the later pictures of Mulready, who continued to paint after he was seventy years of age, was due to yellow degeneration of the crystalline lens, and maintained that this excess of blue could be neutralized, and these pictures restored to the harmony of the artist's earlier productions, by looking at them through a glass slightly tinted with yellow. Persons who have been operated upon for cataract sometimes complain, after the yellowish lens has been removed, that everything appears to them unnaturally blue. This effect soon passes off as the retina becomes accustomed to white light.

COMMISSURE

See EYELIDS.

COMPRESS, COLD

A cold compress is sometimes ordered instead of a poultice for the purpose of dilating the blood-vessels of a particular part of the body. It consists essentially of three or four thicknesses of linen or lint wrung out of cold water laid on the affected part and covered with a sheet of gutta-percha, india-rubber or other waterproof material to prevent evaporation. It is usual to cover the waterproof material with dry lint or cotton-wool in order to retain the heat. The first effect of a cold compress is to cause the surface blood-vessels to contract, and to abstract heat from the body. After five or ten minutes, however, the body will have heated the compress to blood-heat and profuse perspiration will have set in. From this point the action is exactly like that of a poultice, and is often useful in diminishing pain and reducing inflammation.

CONCUSSION

(Latin, **concussio,** "a shaking together"; from **con,** "together"; **quatio,** "I shake").

This term implies a shock, and in surgery it may be defined as an injury to some internal part of a living body inflicted by sudden external violence, not necessarily accompanied by an external wound. It may or may not be connected with fracture or dislocation, or it may be accompanied by bruise or sprain. The external violence is almost always a blow, or a fall; which latter, indeed, may be considered a blow, the force proceeding in this case from the momentum of the patient's body instead of the momentum of the instrument, which in the other case inflicts the blow. The nature of the injury is the same.

CONCUSSION OF THE BRAIN

This is the most common accident of this kind, and certainly it is the most important. When a person receives a blow on the head, or falls upon his head, and is stunned by the accident, he has experienced a concussion of the brain. The effects of such concussion are sometimes so slight and transitory, that in a minute or less, consciousness returns, and no further inconvenience is experienced, or perhaps a slight headache or trifling degree of mental stupor may continue for a shorter or longer period. In severer cases the sufferer remains for a longer time unconscious and his senses return very gradually. He first of all recognizes some person about him; he ascertains from surrounding objects where he is, or that he is in a strange place; he has a confused notion that some accident has happened; in a little time he recollects where he was, or whence he started, some hours ago; and at length he traces in thought circumstantial occurrences down to the moment, or, what is frequently the case, down only to within a few minutes of his accident. This degree of concussion is frequently attended with vomiting and, indeed, this affection of the stomach succeeding to an injury of the head is very indicative of concussion of the brain. In still severer cases consciousness does not return for some days, or never fully returns. Symptoms of apoplexy, or palsy, of inflammation of the brain, or of high cerebral excitement without inflammation, may supervene, which may prove speedily fatal, or ultimately terminate in epilepsy, or other serious chronic affection of the brain; or those severe symptoms may terminate in slow but perfect recovery. With none of those formidable consequences of concussion have we anything to do. It is indeed only as to the treatment to be adopted immediately after the accident that we shall make any observations, for in all cases of a severe grade the sufferer must be consigned, as speedily as may be, into the surgeon's hands. If, then, you be a witness of such an accident as has been described above, or if you arrive upon the spot immediately afterwards, and find the patient senseless, or but partially restored to consciousness, you will place him with as little disturbance as possible in a darkened room where the utmost quiet can be secured. Let the head be slightly raised. Apply warmth to the body and extremities by means of bottles, heated bricks, or flannels. Let the diet be low and the bowels be kept open. Watch, however, the amount of reaction ; and if after an hour or two the pulse becomes full, the heat of the skin above the natural standard, and particularly if he complain of headache, proceed without hesitation to apply ice or cold-water cloths to the head and adopt rest, quietude, and a low diet.

CONCUSSION, EFFECTS OF, ON THE INTERNAL EAR

The injurious effects of concussion on the ear, but especially upon the drum-head, often last for life. In many of these cases, in which the drum-head is injured by concussion, injury is also sustained in deeper and more tender parts, mainly in the labyrinth and in the auditory nerve. Thus, a box on the ear, a blow on the ear or head of any kind, or a fall, may be the direct cause of concussion and permanent deafness. Sometimes the deafness is total as well as sudden. These cases rarely recover hearing under any treatment, and it is doubtful whether anything could be done to prevent the loss of hearing had treatment been instantly applied. Where, however, the deafness is only partial, and the ringing in the ear keeps up for some time after the concussion, no matter what its nature may have been, treatment may do much towards restoring the hearing. But whatever is to be done, must be done at once. In such cases, small doses of strychnia are probably the best means of treatment.

CONCUSSION OF THE SPINE, OR TRUNK

When a person receives a blow, or falls rather upon his back than his head, he is, perhaps, but little, if at all, stunned ; he gets upon his legs, staggers, and falls again, his pulse is feeble, and perhaps irregular, his countenance is pallid, and he feels faint, but soon recovers sufficiently to walk home with some assistance. These are the symptoms of concussion of the spine, or of concussion of the trunk. The immediate practice is perfect rest and quiet, the patient lying upon his side or face. When reaction sets in, apply cold to the spine as in the case of concussion of the brain. If after the first symptoms have passed away he complains of some local pain over any part of the spine, you may deem it a case of concussion of the spinal marrow, and may expect a continuance of disturbed circulation ; and anticipate, if the injury be severe, symptoms of partial paralysis, or some derangement of one or other of the vital functions. In such cases you will never err in ordering leeches and warm fomentations to the pained part, if the surgeon has not by this time arrived to release you from your responsibility.

CONDIMENTS

The substances known as condiments, though they have no direct nutritive value, exercise a very great influence on the processes of nutrition. They give relish to food and stimulate the appetite, and thus favourably affect digestion. Such substances are pepper, salt, mustard, vinegar, spices, sauces, and pickles. Salt, indeed, is more than a condiment, for its action is needed by the blood and tissues. The reason that we require so much salt whilst most animals in a state of nature require none is that in the process of preparing and cooking our food it is deprived of most of its saline constituents. Salt has therefore to be supplied artificially to make good the loss. The excessive use of condiments, however, causes irritation of the digestive organs, and consequent disorder of the digestive functions.

CONFINEMENT, APPROACH OF

There are certain symptoms which manifest themselves towards the close of pregnancy, and warn the woman that her confinement is not very far off. One of the first of these symptoms to attract the patient's attention will be a perceptible alteration in the size of the abdomen. It will appear to her that she is smaller than she was perhaps a month before ; and whereas during the last few weeks she felt perfectly incapacitated for active exercise, she now feels able to move about with comparative ease, and experiences a greater desire for walking than she has done for some time past. The breathing, too, which before was affected on the slightest exertion, is now free and performed without difficulty. The bowels and bladder begin now to give the patient trouble ; she experiences a frequent desire to empty the bladder and evacuate the bowels. This is a wise provision of nature to keep the channel through which the child has to descend as free as possible from anything that would impede it in its course when labour has begun. Besides these symptoms, a discharge now makes its appearance, called, in popular language " the show." This discharge consists of mucus and is of a whitish colour, or may be mixed with new blood. Along with this slight pains are experienced, which increase in severity and in the regularity with which they occur until the contents of the womb are expelled. The character of these pains may be described as " grinding," and whenever they are felt, and " the show " has made its appearance, the medical attendant should be sent for, or at least communicated with, that he may not be out of the way. The pains are at first slight and irregular, but as labour advances they assume a more bearing-down character, and the intervals between each pain become less. (*See also* LABOUR, PREPARATIONS FOR.)

CONGESTION

By congestion is meant a dilatation of the blood-vessels over a particular area. Its commonest manifestation is in the act of blushing. There may be general congestion of the internal viscera, as is often seen in plethoric persons, but more commonly it is one particular organ or part which is affected in this way. The liver in particular is subject to congestion. In this case alcohol and all highly seasoned food should be avoided, and moderate purgation should be resorted to. Very similar treatment should be adopted in the case of congestion of the kidneys ; though in this case it is also most important to bring about a free action of the skin by means of warm baths and the drinking of large quantities of warm liquids. Congestion of the lungs is often the first stage in pneumonia, and should be treated in a similar way to this disease. There is however another type of congestion of the lungs which is even more serious. It often occurs in the last stages of exhausting fevers, as well as of various complaints of the aged.

It is known as hypostatic congestion, and is due simply to the action of gravity. Owing to the patient lying continuously on his back, and at the same time owing to the lack of tone in the blood-vessels, the blood collects in the back portions of the lungs. In all cases where this condition may be anticipated it is therefore a good plan to roll the patient over first on one side and then on the other for two or three hours daily, so as, at any rate to some extent, to relieve the congested area.

CONJUNCTIVITIS

Conjunctivitis, that is inflammation of the membrane covering the eye, occurs in many forms, of very varying degrees of severity. That of most frequent occurrence is known as catarrhal ophthalmia. In this form the membrane becomes reddened, there is a gritty feeling in the eye, and a sticking together of the lids on awaking in the morning. As all forms of conjunctivitis are more or less contagious, the greatest care should be taken to prevent them spreading through a household. As far as possible the patient should be isolated, and all towels or other cloths used by him should be kept for his sole employment. The treatment of the simple form of ophthalmia consists in frequently bathing the eye with boracic lotion and the application morning and evening of a little yellow oxide of mercury ointment. More serious forms of conjunctivitis such as trachoma, purulent ophthalmia and membranous conjunctivitis, are far too grave in their possible consequences for home treatment of any kind. When any of these occur skilled advice should at once be obtained and strictly followed.

CONSTIPATION

(Latin, **constipo,** "I crowd together," from **con,** "together" ; **stipo,** "I press").

Constipation is a symptom which may be due to disease of the bowels, or to an imperfect performance of their function. In the natural course, the food, after digestion by the stomach, passes down into the intestines and, by the contraction of their muscular coats it is propelled onwards, to be discharged once or twice a day from the rectum as excreta or fæces. Any disease, as ulceration or cancer of the bowel, which obstructs the passage of the food, will therefore cause constipation, and any condition which produces a paralysed or sluggish state of the muscular walls of the bowel will likewise cause constipation by removing or interfering with the propelling power. There are few persons who have not experienced at some time or other the inconvenience of constipated bowels, and all who have suffered from constipation habitually will agree in regarding it as one of the greatest troubles of life. Not only does it indispose the mind to exertion and the body to exercise, but it casts a gloom over the spirits, and is productive of that general discomfort which ruffles the temper and embitters the ordinary enjoyment of life. Fæcal matter, even in its natural state irritates the intestines if retained beyond the usual period ; and how much more irritating must it prove when its characters have become altered by its being unduly retained. Irritation of the large intestines, so induced, extends by sympathy to the liver and stomach and, by disturbing their functions, impairs digestion ; from impaired digestion there must proceed impure chyle ; from impure chyle impure blood ; and if impaired digestion, produced and prolonged by habitual constipation, should endure not for months only, but for years, how can we wonder that the whole mass of the blood should become corrupt, or that the solids derived from that blood should be corrupt also? How can we wonder that eruptions should disfigure the body, or that intractable or malignant disease should break forth and shorten life? Can we hesitate, then, to believe that habitual constipation may be and is one frequent source of general disorder and of local disease? With rare exceptions, people can never enjoy good health while they suffer from constipation—a state much more prevalent than is generally known or believed. Liver complaint, dyspepsia, headache, vertigo, and that tormenting disease, piles, are only some of the direct results of constipation, and give rise to an immense amount of human misery. It is desirable that nature should be coaxed to relieve the bowels in the usual way. The frequent resort to aperients is much to be deprecated. They may become necessary in the event of extreme obstinacy, but anything in the way of habitual use of pills and other medicines is to be condemned emphatically. Evacuation of the bowels is a natural function and should be naturally discharged. When this ceases to be the case, then neglect and irregularity on the part of the sufferer are plainly indicated. There can be very little doubt but that if patients paid as much attention to this important duty as they do to all other important duties constipation would practically cure itself. But nature must be provided with a regular opportunity

CONSTIPATION, DIET IN

Habitual constipation is not unusual in women after a confinement, in people of a nervous temperament and in those who lead a sedentary life ; those also who are in the habit of frequently taking opening medicine, pills, etc., are liable to it. In such cases an altered diet will nearly always suffice and cause no after ill effects. By the aid of diet much may often be accomplished. A glass of cold water taken on rising in the morning, will in some promote an action of the bowels. A light breakfast in those who are sedentary will favour this action, especially if eaten soon after getting up, when a heavy or full breakfast is of very questionable propriety. Coarse brown or bran bread is very efficacious, the bran acting as a salutary stimulus to the peristaltic action of the intestines. It is open sometimes to the objection of the bran exciting irritation in the rectum, on which account some persons are unable to continue its use. Figs, prunes, mustard-seed and ripe fruits are taken with the same view, and often with good effect. A simple expedient is to make a practice of taking, as the last article of food at breakfast, a slice of bread and butter and a liberal supply of marmalade. This acts as a lubricant of the bowels. Treacle and preserves also have a similar effect, but marmalade is often the most efficacious. With these simple remedies should be combined a sharp walk every day and, when advisable, a cold-water bath should be used every morning. Habit is a most important element in preventing constipation ; no one should postpone the process, and in health the performance of the function ought to occur regularly about the same hour every day. An occasional aperient may be required, and then a mixture containing Epsom salts or some similar preparation can be ordered ; the effervescent citrate of magnesia is often given in these cases. By the use of these means, habitual constipation may nearly always be cured, if it has not lasted too long. In children, a similar treatment may be adopted ; while in infants an altered diet, and a little magnesia occasionally, mixed with the milk, will suffice for a cure.

CONSTIPATION, MEDICINES IN

The most important part of the treatment of habitual constipation undoubtedly consists in the enforcement of healthy habits of life, the taking of regular vigorous exercise, the free consumption of water, and the regulation of the diet so as to include a large proportion of fruit and vegetables, but in a large number of cases it is certainly necessary to make use of drugs in order to bring about a more regular and healthy action of the bowels. In mild cases the regular use of the following pill—which should be taken at bedtime—will be found helpful. Extract of aloes, one and half grains ; powdered ipecacuanha, half a grain ; extract of nux vomica, half a grain ; sulphate of quinine, one grain ; and soap, half a grain. Many other drugs are in particular cases found useful in the treatment of habitual constipation ; compound liquorice powder, confection of senna, cascara, and Epsom salts, are among those in most general use. A useful formula is the following : liquid extract of cascara sagrada, one ounce ; tincture of orange-peel, two drachms ; rectified spirit, one drachm ; syrup, six drachms ; cinnamon water to six ounces. Of this mixture one to three teaspoonfuls should be taken two or three times a day. For the habitual constipation which often occurs in old age the following will generally prove of great service : extract of belladonna, a quarter of a grain ; extract of nux vomica, a quarter of a grain ; aloin, one third of a grain ; powdered ipecacuanha, a quarter of a grain. This pill should be taken every night.

CONSUMPTION

(Latin, **consumptus,** "destroyed" ; from **con,** "together" ; **sumo,** "I take")

Consumption, or Pulmonary Consumption, is the disease to which, technically, the name of phthisis, or wasting, is applied. By it is meant that form of lung disease where, first of all, there is a deposit of new material in the substance of the lung. After a time this softens and breaks down. It is expectorated and leaves behind cavities. This process is accompanied by fever of a peculiar kind and general wasting of the body ; whence the name. The processes which lead to this deposit are two in number : one is inflammation of the lung substance, and the other is the deposit of a new growth called tubercle. Most frequently the two processes are associated, for the deposit of the new growth sets up inflammation and its consequences.

The disease may assume a very acute form, such as cannot be mistaken, or it may steal on insidiously, especially if it spread from the air-tubes to the lung-substance. The consequence of such an inflammation is the choking up of the little cavities of which the lung consists in a portion of its substance, and the material thus deposited may either remain there for a length of time, or at once proceed to soften and break down. In this process the damaged material of the lung, too, may turn back. It may soften, as well as the newly-deposited substance and, breaking down and being expectorated, leave behind a cavity in the surface of the lung. This process may grow quickly or slowly, sometimes very slowly, especially if other changes go on at the same time, such as indurate the texture of the lung, as in what has been called fibroid phthisis—a very slow form of the malady. But, again, there may be a deposit of new substance, the process being by no means inflammatory, and this new growth, which is laid down in the substance of the lung, is called tubercle. Once deposited, its history is the same, or nearly so, as that of the inflammatory material laid down in the lung cavities. There is yet another mode and kind of deposit—that due to syphilis. This is, perhaps, if a diagnosis can be made, the most hopeful variety of the disease. To both the former varieties of the disease there may be a strong hereditary proclivity ; if so, this is a circumstance which tells most unfavourably on behalf of the patient.

CONSUMPTION A CONTAGIOUS DISEASE

Is consumption contagious ? To this important and momentous question many eminent physicians of former days answered " Decidedly not " ; but an affirmative view is now taken by practically the whole medical faculty. The human body is very sensitive to infection, and, therefore, no one should for any great length of time sleep with an invalid actually in a consumption, or even strongly disposed to it. Young members of the same family ought not to be constantly with such an invalid. Dr. Walshe, in 1860, considered the influence of contagion anything but proven ; but in 1871 he had considerably modified his views, for he said, " My belief in the reality of such transmissibility has of late strengthened. I have now met with so many examples of the kind that coincidence becomes itself an explanation difficult of acceptance." Cases due to a supposed contagion are generally of an inflammatory character and very rapidly run on to destruction of the lungs and a fatal termination. It is frequently asked why, if consumption be contagious, wives or husbands who have been in close attendance on their diseased consorts do not inevitably become affected ? The answer to this query is that even when experiments have been carried out on animals, the tuberculizing process occasionally fails to take place, and the direct transmission of infecting particles from the lungs of one individual to another is obviously much more liable to failure.

Moreover, in the supposed case there is nothing inevitable in the liability to infection. Liability is always present everywhere, but the bacillus of tubercle needs a suitable soil for its development and, if such soil be denied it, it will never take root. A wife tending a consumptive is not bound, on that account herself to contract the disease, if she feed and clothe herself well, maintain plenty of fresh air in her house and use all ordinary precautions to avoid fatigue and the condition known as " run down." Moreover, by the hypothesis, she has no hereditary tendency to the disease. As a matter of practice, however, it is certainly undesirable to share the bed of a phthisical patient and to be habitually in close contact with, and attendance on, such a person.

CONSUMPTION, CAUSES OF

The immediate cause of consumption is the presence and active multiplication of the special germ of the disease, the tubercle bacillus. But this germ requires special conditions to enable it to establish itself.

The chief predisposing causes appertain to a peculiarity of constitution, marked by a long neck, prominent shoulders, narrow chest, long slender fingers, and symptoms of constitutional irritability that is easily affected by external agents. The occasional causes are very numerous, as frequent and sudden changes of temperature, or imprudent exposure of the body to cold ; the dust to which certain artificers are exposed, as needle-pointers, stone-cutters, millers, etc. ; over-action in speaking, singing, or playing on a wind instrument ; the irritation of various other diseases, as measles, small-pox, whooping-cough, asthma or syphilis ; the sudden suppression of a cutaneous disease, or of any habitual discharge ; and the irritation of a too rapid growth of the body. The disease may also arise from the lodgment of any extraneous substance in the gullet, or the windpipe ; from profuse evacuations ; and from continuing to suckle too long under a debilitated state. Sir James Clark enumerated as the exciting causes of consumption, "long confinement in close, ill-ventilated rooms, whether nurseries, school-rooms, or manufactories" ; he also said that "if an infant, born in perfect health and of the healthiest parents, be kept in close rooms, in which free ventilation and cleanliness are neglected, a few months will often suffice to induce tuberculous cachexia"—the beginning of consumption. Persons engaged in confined close rooms, or workshops, used to be amongst the greatest victims of the scourge. In these days increased attention to public sanitation and, in the United Kingdom, the frequent inspection of factories and workshops has led to a marked diminution in the death-rate. Under the old *régime* Dr. Guy once reported that in a close printers' room he found seventeen men at work, of whom three had spitting of blood, two had affections of the lungs, and five had constant and severe colds. The great mass of consumptives die under thirty ; and as the disease averages two years after a cough has been established, it clearly follows that the seeds of the disease are sown in the majority of cases during the "teens" of life, owing to the imprudence, thoughtlessness, and ignorance of the young.

CONSUMPTION, MIXTURE FOR

See MIXTURES.

CONSUMPTION, POPULAR ERRORS RESPECTING

It is a delusion to suppose that consumption is confined to the lungs. It is true that the lungs are a favourite and the commonest seat of the mischief, but other organs may also be involved, with equally serious and far more rapidly reached results. In the brain tubercular meningitis may develop, and there may be tubercular disease of the bones (precipitating peritonitis). The throat and other parts may be affected, and the scrofulous or strumous condition is almost identical with consumption. These facts go to show the supreme necessity, especially on the part of those who are either of weak constitution, or follow the less healthy indoor occupations, or live in damp districts or in insanitary surroundings, of exercising the most scrupulous care in all the concerns of daily life. It is wise enough of public authorities to try to put down the nauseous habit of expectoration, but this is only one of many means to a most desirable end. The spittle of consumptives is known to be chockfull of the germs of the disease and the object of suppressing the spitting practice is to endeavour to prevent the dissemination of the germs from the dried sputum of consumptives. Yet, little good will follow such a sensible restriction, if the members of the community are guilty of what amounts to criminal neglect in other and more important directions. To give up expectoration and indulge in worse habits, to live in the midst of squalor and dirt, to eat unwholesome food, to avoid fresh air as if it were a poison, to spend on the publican what should be spent in providing warm clothing and good boots for the family is, with a vengeance, to strain at the gnat and swallow the camel. Sunshine and fresh air are the deadliest enemies of the tubercle bacillus and should be welcomed in our homes instead of being excluded, precautions against draughts being taken. A common error is that one disease cures another, or at least staves off an attack. Dr. J. B. Harrison remarks of the notion that asthma and consumption are incompatible, "Asthmatic people are no doubt often considered by the public as consumptive, and it then becomes a matter of surprise that these people continue to live year after year. Sometimes these asthmatic people do die in the end of consumption. Supposing, indeed, that a few asthmatic people are found after death to have had tubercles in the lungs, it is scarcely logical to infer that the consumption would have been more rapidly developed if the asthma had not existed. Because those who have asthma in its most marked form do not necessarily become consumptive, is no proof that the asthma prevents consumption. I think the great bulk of consumptive people would be found free from gout ; but are we, therefore, to try to induce gout in order to prevent consumption ? My own idea of this opinion, about asthma curing consumption, is not only that it is an error, but that it is one calculated to do much mischief. There is also a notion that ague cures consumption. This is equally ridiculous. There are, in fact, many cases of consumption in agueish districts."

CONSUMPTION, SYMPTOMS OF

It is of the very first importance that this disease should be diagnosed in the earliest stages, for it is then that certain of its forms may be treated with tolerable confidence of success, and all can be dealt with to most advantage. That form which promises most to timely treatment is the inflammatory form, especially that which comes on in a patient who has long been in depressed health, from whatever cause. It commonly begins with a slight cough, which, however, persists, and will not go away, and the patient gets gradually thinner. The respiration indicates feebleness, being wavy in character, or even failing. Besides this, there are certain sounds only to be appreciated by a skilled ear. If with all this there is a bad family history, the case is one demanding prompt action. This may be treated with good hope of success. If the fever keep high, the chances do not improve; if it gradually diminish and totally disappear, the patient may be said to have regained his health. Take now, a case of tubercular consumption. It may arise from the former, or it may be developed from the products of some long-standing disease of other organs, or one lung may infect the other. This form is not so common as the other. Its origin is very insidious ; but having begun, it goes on. There is considerable uneasiness at night ; the temperature is high ; and there are troublesome night sweats. There is a persistent cough and very likely pain in one side. The appetite is very capricious and probably there is diarrhœa. With such cases, too, a huskiness, or even loss of voice, is by no means uncommon. This rarely occurs in any other variety of consumption, and may be looked upon as proof positive of the existence of this form, if any consumption be present. The earliest symptoms of consumption are very probably connected with digestion : the appetite becomes capricious ; there are pains in the chest, with some cough, often dry and hacking, with a small quantity of frothy expectoration. There are debility and flushing of the face on the slightest exertion ; at other times the countenance is pale, except there be a hectic patch of red in the middle of the cheek. The eyes look unusually white and pearly ; there is some fever at night and a tendency to night sweats. Very likely there is some spitting of blood. This occurs in a very considerable proportion of cases and is often the earliest symptom calling for attention. As the disease progresses, emaciation advances, so that the joints become enlarged by shrinking of the limbs and the fingers commonly grow clubbed at their points. The night sweats and diarrhœa are the great means of reducing the bodily strength and substance ; but in some cases excessive expectoration aids materially in this untoward process. At the same time the capricious appetite and the imperfect digestion leave sustenance of the body very deficient. During all this time the spirits of the patient are good. A very troublesome complication often seen is fistula in the lower bowel, which, if not relieved, taxes the patient's strength sadly. On the other hand, there is always a risk that if an operation be attempted, the wound may not heal and so the latter state be worse than the first. Usually, if the disease be not arrested, the patient dies of exhaustion ; sometimes he suffocates or bleeds to death—consciousness continuing to the last. But this result is by no means necessary ; and the dread of the disease as being universally and unerringly fatal, which was wont to prevail, has been shown to be without foundation. Undoubtedly, if a patient with a bad family history is seen for the first time when the disease is well advanced, we have little ground for hope. True, also, that the tubercular form of the disorder is less amenable to treatment than is the inflammatory. Yet, due care being exercised, there are few cases which cannot be benefited ; a goodly number can be completely cured, or, at all events, the lungs so healed that sufferers may be enabled, with constant vigilance, to live a good long life in moderate comfort. The following remarks of Abernethy are worth attending to. They are oddly expressed and embrace only a limited view of the subject, but are, nevertheless, valuable. He says: "Can consumption be cured? Bless me; that's a question which a man who had lived in a dissecting-room would laugh at. How many people do you examine who have lungs tubercular, which are otherwise sound. What is consumption? It is (ulcerated) tubercles of the lungs; then, if those tubercles were healed, and the lungs otherwise sound, the patient must get better."

CONSUMPTION, TREATMENT OF

The first and greatest point of all is the selection of the condition under which the patient is to live. On the continent of Europe there may be found in different health resorts people who have all their lives had bad chests, but who, by wandering from health resort to health resort, according to the season of the year, are able to maintain life comfortably. If such a thing is not possible, we must try next to select the most favourable conditions practicable. The first great thing in selecting the abode is the avoidance of damp. It should be situated in a dry and porous soil. Patients must also take the greatest care of themselves; no risks must be run. They must live plainly, but their food must be nutritious. They must avoid excitement; but cheerful society is of the greatest possible value. They must not fatigue themselves; but daily exercise is incumbent. They must not be exposed to too great heat; but cold is even more to be dreaded. They must try to keep the skin open; but they must avoid perspiration. Hence baths must be regulated in temperature —tepid, cool, or cold, as the case may be. The bowels must be kept open; but if they are loose, the diarrhœa must be checked. Finally, such patients should on no account go without flannels, while the other clothing should be changed if desirable, to suit the different periods of the day and year. At all times it must be warm, so as to avoid risks from cold. The places best adapted for health resorts, for those who are the subjects of consumption, are situated along the English south coast, or that of France. Torquay and South Devon are very good if the patient can stand their relaxing climate; if not, Ventnor, which is far drier. Hastings is intermediate between the two; while Penzance and other Cornish resorts are milder and moister than any of the others. Brighton is more bracing; and certain districts on the Lancashire coast have also been tried with tolerably fair results. If neither Ventnor, Hastings, nor Torquay will suit, the patient must go abroad, and practically his choice must rest between Pau and the Riviera, that strip of coast which intervenes between the Maritime Alps and the sea. Madeira used to be the great resort, but has fallen into disrepute. It is, perhaps, best adapted for those cases where the throat, as well as the lungs, is affected. In summer, St. Moritz and Tarasp have become favoured resorts; but many other similar sites might be selected, if the accommodation be good and the food suitable. Davos and other Alpine resorts, Algiers and Egypt are in high repute for winter residence. For those in the very early stages of phthisis, nothing perhaps does so much good as a sea voyage to a mild climate—to the West Indies, for instance ; though many may prefer the longer voyage to Australia or New Zealand. Often these cases do well, but they must be undertaken early, or the result will be the reverse of favourable. It is absolutely cruel to send a consumptive in an advanced stage of the disease to a far distant country, for it is all but certain that he is being consigned to death in a strange land. The Transvaal and other districts of South Africa, California and other parts of the United States are highly desirable for those who are threatened with consumption or who may even have it in an incipient stage, provided they can see their way to spend the rest of their life in these countries. The case of Cecil Rhodes was instructive. Early residence at the Cape arrested the disease. When he returned to England several years later, symptoms warned him to go back to South Africa. Change of climate in women is apt to produce derangement of the menstrual function. This should be seen to, as any excessive flow would be very weakening. This, moreover, has to be borne in mind that in consumption this function almost entirely ceases and generally does so altogether. The majority of patients suffering from consumption are not in a position to avail themselves of the climatic advantages which this or that health resort may possess. Such, however, need by no means be deprived of the benefits which the open-air treatment offers. No matter what the weather may be the patient should spend almost the entirety of every day in the open air. He should be wrapped up with coats and blankets if the weather be cold, and should be protected from the rain, but the presence of cough, fever, night sweats, or of spitting of blood offers no reason for the patient remaining indoors. At night time the bedroom door and windows should be kept wide open, for it cannot be too strongly insisted on that any harm that might possibly result from the breathing of cold air is trivial by the side of the inevitable harm caused by air which has already passed through the lungs. Patients, the subjects of consumption, have often early in the disease a rooted objection to fat as an article of food. This is the more unfortunate as, of all substances, it is to them the most necessary. If, therefore, they refuse to take fat as food, we must endeavour to give it as medicine. The form of fat which is most easily digested is cod-liver oil. It is to be given to the patient cautiously. Cod-liver oil is food rather than medicine and the best time for taking it is just after a meal. The fish-oil used in this way should be entirely devoid of colour ; every trace of colour is an impurity. Next to cod-liver oil as a remedy comes iron. This, too, is best dealt with as food ; that is to say, given along with meals. The best preparation is the reduced iron, which can be taken in soup. If this is not attainable, the freshly prepared carbonate should be given. Pepsine, as procured from the pig's stomach, is exceedingly useful in enabling the food to be digested with ease and comfort, when otherwise it would only pass into the intestines, there to putrefy and ferment and so set up diarrhœa. Four or five grains may be taken for a dose just after a meat meal. If that do not suit, meat digested beforehand might be tried. When cod-liver oil cannot be taken, other kinds of oil may be tried. Of these the best are cream and salad oil. When no oil can be taken, rubbing it into the skin does good. Syrup of the iodide of iron may be given along with the oil and often does good. Iodide of potassium seldom does, except the disease be syphilitic in its origin. If prescribed at all, it had better be given in decoction of bark. But of bark the best preparations are the compound tincture and the liquid extract, given in doses of a drachm or so three or four times a day. It is often well to combine some acid with the bark: the best is the dilute nitro-muriatic acid in doses not exceeding twenty minims. If the perspiration be very troublesome, it is customary to give dilute sulphuric acid; but any acid does good. On the other hand, it is very frequently good to give alkalies instead of acids. These, certainly, combined with bitters, very frequently strengthen the appetite and aid digestion. Liquor potassæ is commonly given in doses of 5, 10, or 20 minims, sometimes with bark, sometimes with gentian or other bitters. Certain remedies called hypophosphites, and notably hypophosphite of soda, introduced by Dr. John Francis Churchill, an advocate of the cure of consumption by inhalation, have been highly extolled in the earlier stages of the disease. Counter-irritation is of most benefit where the pleura is concerned and the patient cannot lie in certain positions on account of pain. Flying blisters are kept on only for a few hours; but the most convenient are Dr. Albespeyre's plasters, or Rigollot's mustard leaves. Of the complications to be dealt with, one or two yet remain to be noticed. First there is bleeding. When it comes on, absolute rest must be enjoyed, cold applied to the chest, ice taken internally, and gallic acid with sulphuric acid freely imbibed. Oil of turpentine is also of service, though perhaps indirectly. Night sweats have been alluded to; mineral acids if not otherwise forbidden, are best for them. Diarrhœa must be dealt with carefully. It must never, however, be allowed to weaken the patient; chalk, opium, and acid are the best remedies. If the throat be bad, nitrate of silver is the best application. For the cough, a little opium or belladonna may be given; but it is better treated on general principles. The open-air treatment has yielded highly-promising results and indicates the direction in which cure may most hopefully be looked for (*See* SANATORIA). The emotion of hope is known to influence the respiratory functions, and in the last stages of pulmonary disease the patient is often buoyed up with the certain expectation of recovery. "How frequently," says Sir Henry Halford, "have I seen the face of the delicate female, in the last stages of pulmonary consumption, lighted up and everything assume a bright and cheerful aspect about her! New schemes of happiness have been contemplated, new dresses prepared, and everything was brilliant in her prospects, whilst her parents lived under the greatest apprehension and solicitude, the physician seeing nothing but the inevitable fate for the poor victim whose distemper has deluded her."

CONTAGION

(Latin, **contagio**, "infection by touch"; from **con**, "together"; **tango**, "I touch")

is the term applied to the consequence of a healthy person touching a diseased one and thereby conveying to himself the disease with which the other is affected. The word "infection" is applied to the influence by which a malady is transmitted from one person to another, either with or without actual contact. The type of infectious diseases is small-pox and it is also, as is well known, a highly contagious complaint. Scarlet fever, whooping cough, measles, mumps, influenza, etc., are likewise both contagious and infectious, and make up the class of disorders popularly known as diseases which are "catching." Besides the complaints already mentioned as undoubtedly infectious, there are several others, such as typhus fever, as well as typhoid fever and diphtheria, which are strongly suspected to be, at least in certain circumstances, capable of transmission in the same way from diseased to healthy persons, and it is therefore, imperative to take the same precautions against catching them as against the poisons by which the first-mentioned groups may be disseminated. The importance of learning how to avoid the contagion of these diseases is very great and it is a duty we owe to society to acquaint ourselves with the subject. An examination of any table of statistics giving the causes of death in a community will show that contagious diseases are among the most serious of all enemies to health ; and, in consulting such tables, we must always take into account that the number of non-fatal cases of each disease is at least ten times that of the fatal. Numerous and violent are the controversies which have been waged, and are now carried on, in regard to the true nature of contagion ; but, without entering into them, we will just say that by far the most probable doctrine is that set forth in the germ theory of disease, which is briefly as follows :—This hypothesis, attributed by some to Pliny and without doubt ably advocated by Linnæus, professes to account for the symptoms of contagious diseases by attributing them to the more or less mechanical irritation of groups of microscopic plants, developing in the blood, the skin, and the vital organs of affected persons. The time of incubation (by which is meant the time between exposure to small-pox, for example, and the outbreak of the complaint) is supposed to correspond with the time required for the sprouting of the seeds of these minute plants within the body. The gradual increase in the severity of the symptoms is attributed to the progressive growth of millions of tiny organisms, whose periods of greatest luxuriance mark the height of the attack, and the death and destruction of which correspond to the decline of the disease. The contagiousness of the communicable maladies is accounted for by the existence of the immense number of these micro-organisms (truly the seeds of disease) constantly produced, given off by the sick patient, either alone or attached to some of the innumerable epithelial scales which are all the time being rubbed off, as dandruff, etc., from our bodies. The general absence of second attacks is explained by the hypothesis that the parasitic fungus, on the first occasion, has exhausted all, or nearly all, of some peculiar organic ingredient in our system, which is requisite for its support, according to the very same law which will entail, as every farmer knows, the failure of his wheat, if he plant it repeatedly in the same ground, and neglect to secure a due rotation of crops. The well-known fact that a person is not attacked more than once by any of these diseases, as small-pox, measles, scarlet, typhus, and typhoid fevers, though a general, is not an absolute law without exceptions ; but these are, however, of that rarity which is said to prove a rule. There are instances recorded, but mentioned as curiosities, by medical writers, of persons having had small-pox and other contagious and infectious diseases, not only twice, but even oftener. Sir Robert Christison was so liable to typhus fever that he was forced to give up his attendance as a physician upon any patient affected by it ; for he found, after a series of half a dozen attacks or so, that it was not possible for him to expose himself to the disease without getting it. Thus, although one of the most eminent and most indefatigable physicians of the Edinburgh Infirmary, he was, after many years of heroic martyrdom to typhus fever, to which his peculiar sensibility had made him so repeatedly a victim, forced by his associates to yield to their remonstrances against his entering any ward of the hospital containing typhus patients. Every person afflicted with small-pox, scarlet fever or any other of the diseases already mentioned, is, according to the germ theory, to be looked upon as a sort of hotbed or forcing-house for the seeds or spores of that malady. From his or her body are continually given off in all directions, from the skin, the breath, the perspiration, and the other secretions, millions of spores, so minute that twenty thousand of them, placed end to end, would not measure an inch in length, and a group of them, the size of an ordinary grain of sand, might contain fifty millions. Each one of these infinitely minute seeds, if it were received into the human system in favourable circumstances, would rapidly reproduce itself, and, after a few days or weeks, corresponding, as already stated, to the period of incubation, give rise to a new case of disease ; again, a new hotbed for other unprotected persons. Now these spores, just like the seeds of large noxious weeds which, when allowed to gain a foothold in field or garden, propagate themselves with such immense rapidity, have no power to move of their own accord and can only develop if they meet with air, moisture and congenial soil suited to their peculiar requirements. That is to say, if the contagion of small-pox, for example, reaches, by whatever means, an unvaccinated person before its vitality is exhausted, it is still powerful for evil. It is the business, therefore, of governing bodies to penalize the wilful dissemination of contagious disease.

CONTAGION, LEGAL MEANS FOR PREVENTION

Legal means for preventing the spread of infectious or catching diseases are the following :—

1. The medical attendant is required to notify the Sanitary Authority of the occurrence of any case of infectious disease, with as little delay as possible.

2. Any person who wilfully or negligently is the means of spreading infectious and contagious diseases among his friends or neighbours is liable to statutory punishment.

3. It is illegal to use any public conveyance for the removal of a patient to a hospital or anywhere

else without telling the driver that it is a case of infectious disease.

4. The driver of a public conveyance may refuse to take any such person unless he be paid a sum of money sufficient to defray the expenses of disinfecting his vehicle.

5. Any driver taking another fare, after conveying an infected person, without previously disinfecting his vehicle, is liable to a penalty of £5.

6. It is illegal for an infected person to go, or for any person to take or send any one suffering from an infectious disease, to any public place, such as the waiting-room of a hospital or dispensary, or to a school, or to a church or chapel, or to a theatre, or in an omnibus, or public carriage, so as to endanger any other persons, whether adults or children.

7. It is also illegal for any person to give, lend, sell, or move to another place, or expose any bedding, clothing, rags, or other things which may have become infected, and are liable to convey any contagious diseases to another person, unless such things have been previously disinfected.

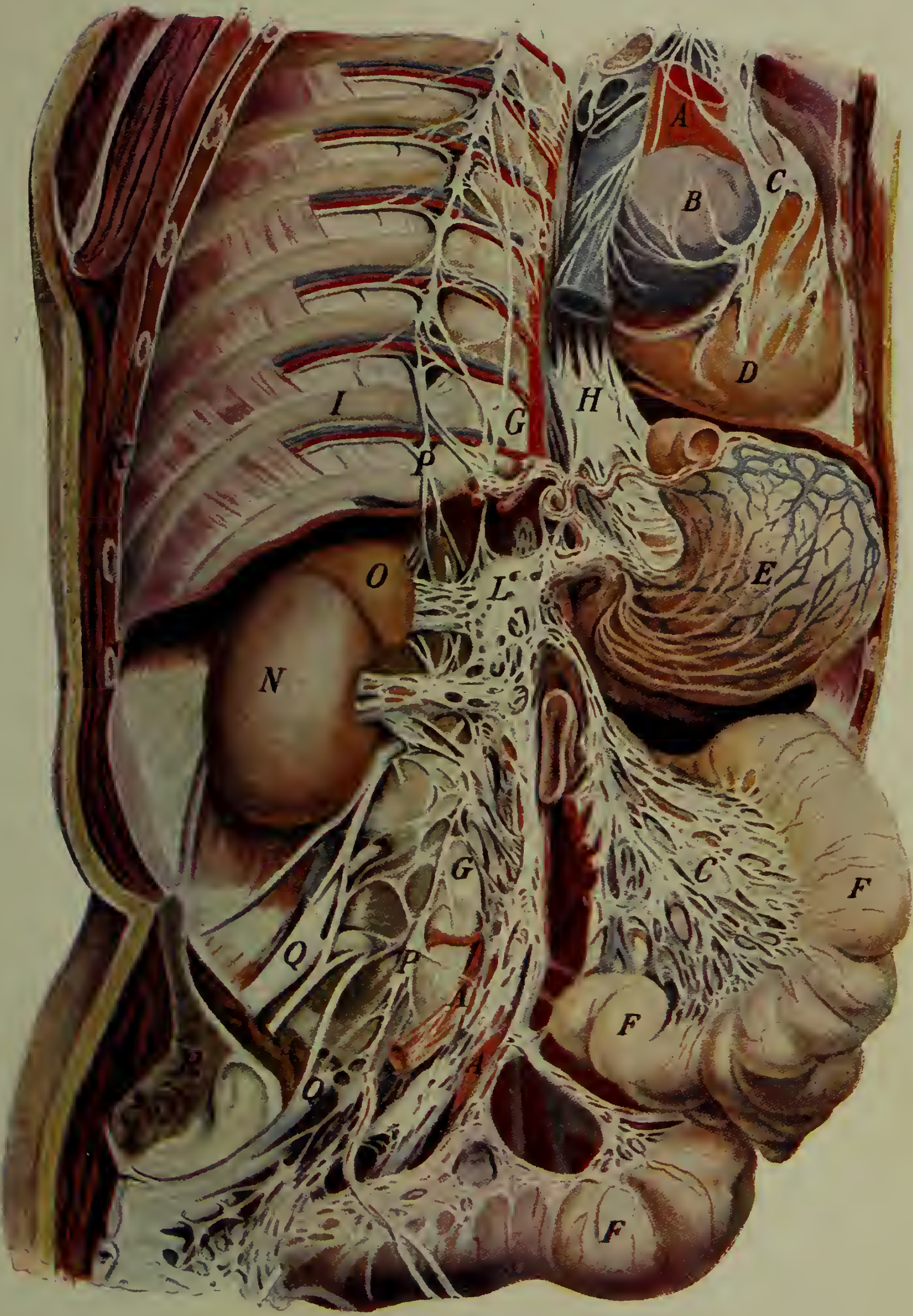
8. It is also illegal to let any house, room, or part of a house, in which any person has been ill with any dangerous infectious disease, until it and all articles in it have been properly disinfected. The same law also applies to public-houses, hotels, and lodging-houses. The Sanitary Authority is required to see that the disinfection of the room, bedding and clothing is effectual and, if necessary, is empowered to carry this out.

CONTAGION, PRACTICAL RULES FOR PREVENTION OF

When any member of a family is attacked with small-pox, scarlet fever, diphtheria, or other contagious disease, the malady may generally be prevented from extending by attention to the followin rules, which have been compile with a view to practical utility, bu if the Sanitary Authority is no satisfied that the patient can be properly isolated at home, it may require him to be removed to a fever hospital. Not only as a matter of obvious precaution for the welfare of the patient's family and that of the general community, but also in the best interests of the patient himself, it is extremely desirable, in the case of all the graver infectious troubles, that he should be conveyed to a hospital. There he will receive the attention of practitioners specially experienced in these diseases, as well as skilful nursing, and expert treatment. If however, he can be thorough isolated at home and adequately attended to, the following precautions must be observed:—

Have the patient placed in one of the upper rooms of the house, the farthest removed from the rest of the family, where the best ventilation and isolation are to be had. He should be under the sole charge of a nurse who is protected by a previous attack of the disease. The apartment should be at once cleared of all curtains, carpets, woollen goods, and unnecessary furniture. To secure the utmost cleanliness, provide a basin partly filled with chloride of lime or strong carbolic acid solution (a teaspoonful of acid to a half-pint of water) for the patient to spit in. Change the clothing and bedding of the patient as often as needful, but never let the cast-off articles be carried dry through the house. A large tub, containing carbolic acid solution

DEEP-LYING NERVES OF THE ABDOMEN.



A, Aorta. *B*, Right Auricle. *C*, Sympathetic and Vagus Plexus. *D*, Heart. *E*, Stomach. *F*, Intestines. *G*, Spine. *H*, Vagus and Sympathetic Plexus. *I*, Ribs. *K*, Section of Ribs. *L*, Ganglion Solare. *M*, Diaphragm. *N*, Kidney. *O*, Suprarenal Capsule. *P*, Sympathetic Nerve. *Q*, Nerve Trunks. *R*, Section of Right Haunch Bone.

(four fluid ounces of carbolic acid to each gallon of water) should always stand in the room for the reception of bed or body linen immediately after its being removed from contact with the patient. The nurse should wear in the chamber a loose gown and tight-fitting cap, and the hands should be washed, before going out, with the carbolic acid water. Pocket-handkerchiefs and napkins should not be used, but in their stead pieces of rag, which can be at once burned. Glasses, cups, dishes, etc., must be scrupulously cleaned in the carbolic acid solution, or in boiling water, before they are carried away from the room. The discharges from the bowels and kidneys are to be received, on their very issue from the body, into vessels containing some disinfectant, such as a solution of two pounds of green vitriol (sulphate of iron) in a gallon of water, or the carbolic solution, and immediately removed. A sheet, kept moistened with carbolic acid solution (double strength, or half a pint to the gallon) should be hung over the door outside, or beyond in the passage way, for the purpose of catching any germs of the disease which might otherwise escape. Boiling is the surest way of disinfecting contaminated clothing ; or it may be baked in an oven heated to about 240° F. After the disease is over, the patient should be kept isolated for ten days after every scab has fallen off in small-pox, or after desquamation (that is, " peeling " of the skin) is complete in scarlet fever ; for the last week of his seclusion, daily baths, each containing one ounce of strong carbolic acid, should be given, and every square inch of the body must thus be carefully disinfected, especially the scalp, as the disease poison is apt to linger among the dandruff at the roots of the hair. Persons who have been exposed to infection must themselves go into quarantine for eighteen days in the case of small-pox and at least a fortnight in the case of scarlet fever. To purify the apartment, wash the furniture, woodwork, floor and walls (scraping off the paper) with the carbolic acid solution and soap. Then shut up tightly, and burn in it a pound of sulphur for every hundred cubic feet of space it contains, and allow the fumes to remain in the closed room for twenty-four hours. Lastly, open doors and windows so as to ventilate freely for a week, at the end of which time disinfection may generally be considered complete.

CONTAGIOUS DISEASES, PROPAGATION OF

Contagious diseases are sometimes conveyed to innocent persons, especially children, by their lips having touched drinking-cups, gum-nipples, whistles, etc., which have been contaminated by the mouths or hands of persons infected with them, so that parents, nurses and others cannot be too careful to guard against danger of this kind. As we have unfortunately no such safeguard as vaccination against the other contagious diseases, such as scarlet fever, measles, etc., precaution against entering the sphere of their influence becomes doubly important, especially during epidemics of unusual fatality, or at times when our systems are enfeebled in any way by other maladies or unfavourable conditions. These diseases are very apt to be propagated among school children by the return of scholars recovering from measles or diphtheria, for example, before the poison has entirely passed off from their bodies, and without proper purification of their clothing : a pernicious practice, which should also be legislated against, but which can only be fully abolished by the action of enlightened public opinion in regard to the injustice and criminality of such acts. It is absolutely wicked, if not criminal, for parents to allow their children to go back to school, attend parties, or mingle in play or otherwise with other children, until the doctor has himself expressly declared that it is positively safe for them to do so. No individual who has suffered from measles or diphtheria (which may be so mild as to pass for slight sore throat) can safely associate with others for less than two weeks from the date of complete recovery, and a period of from four to six weeks should elapse after an attack of scarlet fever before contact is allowed with children who have not been protected by a previous attack. Clothing, especially woollen fabrics, if not purified by thorough ventilation and disinfection, has been known to convey scarlet fever one, two, or even three years after it was impregnated with the contagion of this disease. With such knowledge of the laws of propagation of the infectious maladies, it is obvious that the study of disinfection, or the destruction of the contagious material, be it vegetable, animal, or mineral, becomes of the gravest importance. Many persons—including, we are sorry to say, not a few physicians—seem to think that if they make an article of dress, a room, or a hospital smell strongly of chloride of lime or carbolic acid, they have accomplished disinfection ; but such is often by no means the case. From a series of very carefully conducted experiments, it has been concluded that sewage or other virulent liquid cannot be regarded as surely and entirely disinfected by sulphurous acid, unless enough of the gas from burning sulphur is absorbed by it to render it permanently and strongly acid to litmus paper. Moreover no similarly virulent fluid can be considered disinfected by carbolic acid unless it contains two per cent., or about one ounce, of the pure acid in every three pints of liquid. Aërial disinfection as commonly practised with carbolic acid or chloride of lime is too often useless or positively objectionable.

CONTINUED FEVER

See FEVER, CHARACTERISTICS OF.

CONVULSIONS

(Latin, **convulsus**, "violently shaken" ; from **con**, "together" ; **vello**, "I pull or pluck").

Convulsions may be said to mean violent and involuntary contraction of the muscles of certain parts of the body or of the whole of it, lasting for a longer or a shorter time and very frequently returning in paroxysms. They may last a considerable length of time, without relaxation, and the term tonic is applied to them. The disease called lock-jaw, or tetanus, is an example of this. Common cramp is an affection of the same kind, but of more limited duration, affecting only a small part of the body. If the spasms alternate with relaxations, they are described as clonic. Such spasms or convulsions as are associated with complete insensibility constitute an epileptic or epileptiform seizure. Salaam, or nodding convulsions, are very rare forms of the malady, peculiar to children

CONVULSIONS, CAUSES OF

The causes of convulsions are manifold, but it would seem as if there is a certain amount of evidence to support the notion that all act by suddenly depriving the motive part of the brain of a due supply of blood. This arrest of blood-flow may be brought about in many ways, by plugging of the vessels, by powerful contraction of their muscular coats, etc. Sometimes poisonous matters in the blood, as in the condition known as uræmia, give rise to convulsions, especially in pregnant women. In children, irritation in a remote part of the body may be reflected in the brain and cause convulsions. Such is the explanation of convulsions from teething, worms, etc.

CONVULSIONS, INFANTILE

When called to a case of infantile convulsions, the remedies to be immediately resorted to are few indeed. The warm bath is the only one, which can with propriety be recommended in all cases. When a sufficient quantity of hot water is not at hand, as soon as a small quantity can be procured, the child may be wrapped in a blanket wrung out of this and covered with another dry blanket, till the bath is prepared. The heat of the wet blanket must be somewhat under that which can be borne by the back of the hand with comfort. When the bath is ready, immerse the child in it at a temperature of 98° to 100°F., and let him remain in it half an hour, if he does not soon faint away. Many children die in convulsions, the consequence of excessive feeding and improper confinement within doors; and it will be well for mothers whose infants are subject to convulsive fits to be attentive to the quantity and quality of their food, and to their having sufficient exercise. "I knew," says Dr. Graham, "a lady of rank, who had lost as many as three or four infants (it may be more) in this way, and from this cause alone. The parents were both wealthy, and the children were all full-grown, strong and healthy at the birth, and appeared so for some months afterwards; but they invariably died at about the age of twelve or sixteen months, evidently from improper treatment, though the too fond mother could never conceive the cause. The nurse and mother joined in stuffing them throughout the day; and, thinking they would perish if left without food through the night, it was a regular practice to take them up and feed them four times during that period!"

CONVULSIONS, TREATMENT OF

In dealing with convulsions in adults, perhaps the best plan is to wait quietly till the convulsion is over and then try to prevent its recurrence. The patient should never be held or controlled further than is necessary to prevent him from hurting himself. His dress should be loosened, plenty of fresh air allowed to circulate around him, and none save those engaged in looking after him should be allowed to come near him. As he begins to revive, a little cold water to swallow may do good, but as soon as possible he ought to be got to bed and undressed—if not previously so—and left to himself. Very likely he will fall into a quiet slumber. Should he not recover consciousness, but pass from convulsions to coma, as it is called, probably the cause of the attack has been the rupture of a vessel and the effusion of blood into the brain substance.

COOL SPONGE BATH

See BATH, COOL SPONGE.

COPPER, POISONING BY

Copper in its metallic state is not poisonous, but some of its combinations are so ; for instance, verdigris, which is a salt produced by the combination of vinegar with copper ; and also the salt so well known in commerce under the name of blue vitriol, which is a sulphate of copper, or a combination of copper with the sulphuric acid, or oil of vitriol. The circumstance in which poisoning by copper generally takes place is by the introduction of artificial verdigris, or acetate of copper, into the stomach along with food ; this verdigris being produced in copper vessels not well tinned, or not at all tinned, when such are left with acid, or with greasy matter in contact, and are afterwards used in cooking without attention to cleanliness. The same substance is occasionally formed and taken into the stomach by the equally culpable negligence of leaving soups or stews in coppers, or copper saucepans, to cool or to be cooked up again for another occasion. Another cause of accident from copper is the practice adopted by many of putting copper coins into pickles and preserves for the purpose of improving or heightening their green colour.

COPPER, SULPHATE OF, OR BLUE VITRIOL

Blue vitriol or sulphate of copper is another preparation of copper, which acts as a poison in moderate doses. In the small dose of one or two grains it operates as an emetic ; when taken in larger doses, it produces the whole train of symptoms described under the headings "Copper, Symptoms of Poisoning by" and "Copper, Treatment of Poisoning by," and requires the same treatment.

COPPER, SYMPTOMS OF POISONING BY

The symptoms produced by verdigris, if the quantity be small, are pains in the stomach with sickness and vomiting, the matter thus ejected being acrid, often of a coppery taste, and sometimes of a greenish or bluish colour. If the quantity be larger, or the person who partakes of the food thus prepared be of a naturally feeble constitution, or previously disposed to bowel affections, the symptoms will be much more violent in degree, the stools become bloody, spasms or cramps come on with cold, clammy sweats, convulsions and death.

COPPER, TEST OF PRESENCE OF

The test of the presence of verdigris in any fluid is the addition of a small quantity of liquid ammonia or of sal volatile, which immediately occasions a pale azure-coloured precipitate, which is re-dissolved by an excess of the ammonia, forming then a deep violet-blue transparent fluid. An easy test of the presence of blue vitriol is a piece of polished iron. Pour boiling water on the suspected matter, and filter it through paper ; suspend a key or the blade of a knife in the filtered fluid and, if blue vitriol be present, the iron will assume a coppery hue and the fluid a greenish tint.

COPPER, TREATMENT OF POISONING BY

The treatment for poisoning by copper in any form in which it can be taken into the system consists in giving the whites of eggs, as recommended after taking corrosive sublimate (p. 150); and in promoting vomiting by introducing the finger down the throat, or by any ordinary emetic, if the symptoms arise soon after the poison has been taken, and by the use of the stomach pump as soon as it can be procured. Should the symptoms arise many hours after the suspected food has been taken, the white of eggs should still be given; cathartic, and then anodyne glysters, should be administered; and, lastly, the treatment for ordinary inflammation should be adopted, as leeching, fomenting, etc.

CORIUM, CUTIS VERA, OR DERMA

(Latin, **corium,** "skin"; **cutis,** "skin"; **vera,** "true"; **derma,** "skin").

These names are given to the inner or deeper portion of the skin, which is also known as the true skin. It forms the largest mass of the skin, is composed of firm and elastic connective tissue-fibres, which interlace so as to form a structure resembling felt, which is extremely tough and yet so elastic as to yield to every movement and to regain its former position and state with a perfection which could not be excelled. At its under surface the meshes of the corium become larger and larger until we reach what is called the subcutaneous cellular tissue, which is very loose and connects the skin with the parts below; and it is this which permits so much motion. This subcutaneous cellular tissue in some parts of the body is filled with fat and forms the panniculus adiposus; and it is here that most of the fat in corpulence is deposited. It is this tissue also which becomes filled with water in dropsy. The outer surface of the corium is not even and smooth, but is thrown into multitudes of elevations called papillæ, and this portion takes the name of pars papillaris, or papillary layer of the skin. These minute elevations, or papillæ, are exceedingly numerous, in some parts of the body there being as many as four hundred on every square line of the surface, that is, on each space a twelfth of an inch square.

CORNEA

See Eye, Globe of.

CORNEA, DISEASES OF THE

(Latin, **corneus,** "horny" from **cornu,** "horn").

Diseases of the cornea, or horny transparent membrane in front of the eye, may destroy or impair its transparency, or the ulcers that are frequently formed may extend through its substance, allow the aqueous humour to escape and involve the iris. Even when such ulcers heal most favourably, they leave a permanent scar in the form of a white speck. Inflammation of the cornea is usually painful and accompanied with distressing sensitiveness to light. It occurs most frequently in persons whose health has been subjected to some depressing cause, or in children who have inherited a delicate constitution. Many of the latter are subject to repeated attacks for years, but the tendency to their recurrence generally disappears before adult life; and if care be taken to prevent each attack from leaving a permanent mark, the eyes may finally remain sound and strong. A large white opacity of the cornea is often mistaken for cataract; and, not many years ago, when a knowledge of diseases of the eye was not so general as now, this mistake was sometimes made by physicians and such patients were sent hundreds of miles to have the cataract removed.

CORNS

(Latin **cornu** " horn ").

Corns, or clavi, are small growths of the outer, or horny, layer of the skin, which give pain by pressure upon the soft parts beneath ; they may be said to be always due to tight or improperly fitting shoes. The true remedy is, therefore, to have a proper shoe. Much may be done both to prevent their appearance and to ease them when present, and to assist in their removal by having several pairs of shoes and wearing them on alternate days. Each presses a little differently and so diminishes the chance of injuring the particular part. Most of the corn remedies contain substances which soften the epidermis, such as potash, acetic acid, salicylic acid, etc., in combination with various resins and pitch. Corns being entirely produced by pressure, the first point in treatment consists in the wearing of properly fitting boots and the avoidance of boots altogether when within doors. The complete removal of pressure, and the consequent relief from pain can be secured by means of a ring of wool surrounding the corn. Most of the corn-plasters of commerce are made on this principle. The corn itself should be painted twice a day with the following liquid : salicylic acid, fifteen grains ; extract of cannabis indica, eight grains ; alcohol, fifteen minims ; aether, forty minims ; flexible collodion, seventy-five minims. If this treatment be continued for a week or so the corn usually falls off. In the case of soft corns, instead of painting with this liquid the corn should be powdered twice a day with oxide of zinc, all pressure being removed by means of a ring of wool, as in the former case.

CORROSIVE SUBLIMATE, POISONING BY

The symptoms after taking corrosive sublimate, which is a preparation of mercury, or, in other words, bichloride of mercury, are similar to those of arsenic poisoning. The antidote is white of egg. Mix the whites of twelve eggs with a quart of water, beat them up, and give a wineglassful every two or three minutes, so as to favour vomiting. If eggs are not at hand, give milk, or sugar and water in large quantities, till the eggs be procured. If vomiting has not yet been freely produced by the poison, or by the egg and water or other drinks taken into the stomach, the back of the fauces, or throat, should be irritated by the finger or by a feather and an emetic of any kind that is at hand given immediately.

CORROSIVE SUBLIMATE, PRESENCE OF, HOW TO DETECT

The means of detecting corrosive sublimate will be understood by the following characters :—When exposed to heat in its solid form, it is entirely evaporated. It is soluble in water, and still more so in spirits; and when a solution of it is added to a solution of ammonia, it is precipitated white, when to a solution of potash, yellow, and when to iodide of potassium, a bright scarlet colour.

CORSET OR STAYS

The corset is an article of dress for compressing, under the pretext of supporting, the chest and the waist. It seems a remnant of the old practice of enveloping the whole frame in swaddling bands—a practice which has been generally discarded in rearing male children, but which still lingers as a part of the attire of female children, in defiance of nature, reason and experience. The advantages arising from its use are trifling; the disadvantages manifold and serious. Nature has formed the chest (in which are lodged the lungs for respiration and the heart for circulation, two out of three of the vital organs) in the shape of a truncated cone, the base of which is capable of being alternately widened and contracted during inspiration and expiration. The wonderful and perfect mechanism for carrying on respiration cannot come into full play if any compression be applied to the lower part of the chest, which is, however, the part commonly selected, from yielding most easily, to endure the hurtful restraint of tight-lacing. The chest never being allowed to expand to the extent which is necessary, the defect in each respiration is attempted to be compensated for by its greater frequency; and thus a hurried circulation is produced. The heart is also hindered in its action and an imperfectly aërated blood is circulated by it, by which nutrition is inadequately accomplished; unhealthy secretions are likewise formed out of this vitiated blood and prove a further source of disease. The muscles of the chest, spine and abdomen, being deprived of their proper exercise, become attenuated and feeble and incapable of giving due support, whence result distortions of the spine and chest and much of that constipation which so frequently afflicts females. The viscera of the abdomen, especially the liver, suffer greatly, both by displacement—being forced downwards—and by being actually indented by the edges of the compressed ribs. "In examining," says Dr. Hodgkin, whose connexion with Guy's Hospital gave him extensive opportunities of observation, "the bodies of the dead, I have frequently found the lower ribs of females greatly compressed and deformed. I have repeatedly seen the liver greatly misshapen by the unnatural pressure to which it had been subjected, and the diaphragm, or midriff, very much displaced."

CORYZA

See COLD IN THE HEAD.

COTS

Mothers are apt to envelop their babies' cots in elaborate curtains and draperies which are not only unnecessary but are often positively harmful. As a matter of fact, the plainer the cot is the better. Enamelled iron is perhaps the best material for its framework, and what is known as the Hospital cot, which has an arrangement for lowering one or both sides, is perhaps the best form of all. A swing cot or a cot on rockers is quite undesirable, as rocking is distinctly injurious to the stomach and brain of the infant. The best mattress for the cot is one of horsehair, and this should be covered with a waterproof sheet, over which a thick blanket should be placed. The cot should be placed in a light and airy room, but draughts should be avoided.

COTTAGE FILTER

(French, **filtre,** Italian, **feltro,** "filter" and "felt" also, the first attempt at filtering or straining having been made through felted cloth).

One of the simplest and cheapest pieces of apparatus for purifying water is Dr. Parkes' cottage filter, which is thus prepared:—Get a common earthenware flower-pot, and cover the hole with a bit of zinc-wire gauze, or of clean-washed flannel, which requires changing from time to time ; then put into the pot about three inches of gravel and above that the same depth of white sand washed very clean. Four inches of animal charcoal (covered with a thin stratum of gravel, or a piece of slate, to keep it in place) constitute the last layer ; and the water should be poured in on the top and be received from the hole at the bottom into a large glass bottle. The charcoal will, from time to time, become clogged and must then be cleaned by heating over the fire in a shovel. The sand or gravel should also be cleaned or renewed from time to time.

COUGH

Cough is an exceedingly troublesome symptom of very various diseases. It may arise from irritation of the air-passages or of the lungs ; from aneurysm, or from heart disease ; or it may be connected with indigestion, or be merely hysterical and due to no cause in particular. When a man has a tickling sensation in the throat, causing a cough, the most important question is, Does it arise from the condition of the throat itself, from the stomach, or from the lungs ? and he should act accordingly, by addressing the remedies to whichever of these points give rise to the tickling. Persons often cough half a night, or lie awake for hours in consequence of having eaten something which did not agree with the stomach, generally some unusual thing, or from having eaten a late or heavy supper, or having eaten moderately, but while greatly fatigued. Sometimes, as in whooping-cough, cough constitutes the main part of the disease. Cough is mainly due to a kind of reflex or reflected irritation, the source of which may be in the lung or out of it, though most frequently in it. This, conducted by some nerve or other to the breathing nerve-centre, sets up violent expiratory efforts, whilst at the same time the chink between the throat and the windpipe is nearly closed. These efforts are renewed until all the available air is exhausted in the chest and the patient is forced to desist until he can draw a breath. To a worn patient, as one in an advanced stage of consumption, such attacks of coughing are inexpressibly wearing and to be avoided at all hazards. On the whole, the best thing for this purpose is a regulated temperature, as far as it can be kept even, and inhalation of steam is advisable. Where there is a soreness of throat, the best means of relief is surrounding the neck with an envelope of wetted linen or cotton, oil-silk and thick flannel, each in the order mentioned. This, too, is the best application in the croupy cough and breathing with which children are apt to be suddenly attacked at night. As there is always a great dryness of the throat, a draught of water should also be given. A teaspoonful of salt in a tumbler of water will serve as a good gargle, where there is a disagreeable irritation, leading to a constant hacking. Ordinary coughs will seldom require more than a frequent sipping of gum-water or linseed-tea. If apparently coming deep from the chest, the application of a fomentation, prepared like the envelope of linen, oil-silk and flannel, for the throat, though larger, is the best.

COUGH, CHRONIC AND HABITUAL, MIXTURE FOR. *See* MIXTURES.

COUGH EMULSION. *See* EMULSIONS.

COUGH, HOMŒOPATHIC TREATMENT

For a hard, dry cough, aconite is required; for a cough with wheezing, difficulty of expectoration and need of keeping the head high in bed, antimonium tartaricum; for a dry, spasmodic cough, with sore throat and thirst, or for a nervous cough, belladonna; for cough with expectoration and pain, especially between the shoulders when coughing, bryonia; for cough accompanied with constipation and fulness at the pit of the stomach, nux vomica; for cough in children the most suitable remedy is ipecacuanha, dose one drop of the tincture in one tablespoonful of water, given every two, three or four hours, as needful.

COUGH, NERVOUS

Brown-Sêquard gave the following directions:—"Coughing can be stopped by pressing on the nerves of the lip in the neighbourhood of the nose. A pressure there may prevent a cough, when it is beginning. Sneezing may be stopped by the same means. Pressing also in the neighbourhood of the ear may stop coughing. Pressing very hard on the top of the mouth inside is also a means of stopping coughing. And I may say the will has immense power, too."

COUGH, RECENT. *See* MIXTURES.

COUGH, TREATMENT OF

The treatment of cough which is accompanied with disease of the lungs is best described under the heading of those diseases, but there are many cases of cough independent of serious organic disease, which yield to appropriate treatment. Many cases of cough are caused by the irritation set up by obstruction in the nose, or bad teeth; such cases naturally improve when the nostrils or the teeth have been attended to. Dryness of the throat is another frequent cause of cough usually sudden and impulsive in character. Such coughs are best treated by means of glycerine pastilles or a gargle containing one drachm of glycerine to the ounce of water. Then again, especially among children, digestive trouble often gives rise to a very unpleasant barking cough. An occasional dose of rhubarb or cascara, with attention to the diet, generally puts these cases right. People who live in towns often suffer from a cough due to the constant inhalation of irritating particles contained in the air. Nothing much can be done for these cases, unless it be to remove them to purer air. The cough which accompanies an ordinary catarrh of the wind-pipe or "cold in the chest" is relieved by the following mixture: vinum. antimon., one drachm; vin. ipecac. one drachm; spirit aeth. nit. three drachms; syrup. linnon. six drachms; Lig. am. acet. twelve drachms; mist. amygdal to six ounces. Two tablespoonfuls of this mixture may be taken every three or four hours.

COUGH WITH COLD, SIMPLE CURE

For the cough attending a common cold, the following is said to be the best, safest, and cheapest cough syrup ever made:—Take one ounce of thoroughwort, one ounce of slippery elm, one ounce of stick liquorice, and one ounce of flax-seed ; simmer together in one quart of water, until the strength is entirely extracted. Strain carefully, add one pint of best molasses and half a pound of loaf sugar ; simmer them all well together and, when cold, bottle tight. As a general rule, it is best not to stop a cough, especially in children. Dr. Chavasse remarks, " Any fool can stop a cough, but it requires a wise man to rectify the mischief. A cough is an effort of nature to bring up the phlegm which would otherwise accumulate and in the end cause death. Again, therefore, let me urge upon you the immense importance of not stopping the cough of a child. Ipecacuanha wine will, by loosening the phlegm, loosen the cough, which is the only right way to get rid of a cough. Thousands of children are destroyed by having their coughs stopped."

COW-POX

Cow-pox or vaccinia is an eruptive disease of the cow. The poison of this disease, when inoculated into man, produces a local eruption or pock with a variable amount of constitutional disturbance. This inoculation, which is commonly known as vaccination, affords at any rate for a time a protection from small-pox, or at least from its more serious consequences.

Various complications occasionally result in connexion with vaccination, but these for the most part have no direct relation to cow-pox. They are usually the result of uncleanliness, and the symptoms are those of blood-poisoning, such as may occur in connexion with any ordinary scratch or cut in which the wound happens to become foul.

CRAMP

The cramp is a sudden and rigid contraction of one or more muscles of the body, mostly of the stomach and limbs, which is vehemently painful, but of short duration. The parts chiefly attacked with cramp are the calves of the legs, the neck and the stomach. When the muscles are affected, they feel as though they were puckered and drawn to a point, or seem to be writhed and twisted into a hard knot ; the pain is agonizing and frequently produces a violent perspiration. If the stomach be the affected organ, the midriff takes part in the constriction and the breathing is short and distressing.

The usual causes are sudden exposure to cold, drinking cold liquids during great heat and perspiration, eating cold indigestible fruits, overstretching the muscles of the limbs, and the excitement of transferred gout. Cold night air is a common cause of cramp, which is also a still more frequent attendant upon swimming.

When it occurs in the limbs, warm friction with the naked hand, or with a stimulating liniment, will generally be found to succeed in removing it. Where the stomach is affected, brandy, ether, laudanum or tincture of ginger, affords the speediest means of cure. In cramp in the stomach a dose of brandy and opium, with mustard cataplasms to the feet, will frequently relieve the patient.

CRISIS

Feverish disorders may terminate in various ways. In some cases the fever gradually subsides, the temperature falling a little each day until the normal is reached. In this case the disease is said to terminate by **lysis**. In other cases, especially when the onset has been sudden, the fever abates suddenly, so that the temperature may fall from a considerable height to normal in the course of a few hours. In this case the fever is said to terminate by crisis. As illustrations of these two methods we may quote typhoid fever and pneumonia, the former of which ends by lysis, the latter by crisis.

CROTON OIL

When taken internally in a dose of about one drop, this drug exercises intense purgative action. It is highly dangerous in its effects, and should only be taken by order of a medical practitioner. For outward application, rub the surface to which the oil is to be applied with a bit of flannel, and then immediately take up one, two, or three drops of the oil on a rag and cover the reddened surface ; apply this again at intervals of from four to six hours, until small pimples are seen all over the spot rubbed. No oil is to be used after this. Do not try to soothe the burning : irritation is wanted ; tie a soft handkerchief over the part.

CROUP

Croup is a disease of infancy and childhood. At the beginning it is an inflammation and thickening of the edges of the rima glottidis, or the chink at the top of the windpipe, by which the sound of the voice is regulated ; and hence in this disease the cough has a remarkably hoarse, ringing sound, as if made through a trumpet and is followed by a sonorous inspiration something like that of whooping-cough, but shriller ; and the child's crying or speaking betrays hoarseness in the intervals of the cough. As the disease advances, inflammation runs along the mucous lining of the windpipe and through its ramifications in the lungs, and in some cases a muco-purulent exudation from this membrane, becoming tenacious in the upper part of the passages, forms a membranous tube there, which still further impedes the breathing and is sometimes expectorated either in shreds or in larger portions, which forms one of the characteristics of croup in its advanced stage. The parts implicated in this disease are so delicately formed and so essential to breathing, that if the appropriate treatment be not instantly and vigorously adopted in a genuine and severe case of it, a fatal termination will generally occur on the second, third, or fourth day. Croup may occur at any period from the second month after birth to puberty ; and the younger the child is after it is weaned, the more liable it is to the disease. It is most apt to occur in the sanguineous temperament and the full habit. It often seizes a child not perfectly recovered from a previous illness and is liable to a recurrence at distant intervals on exposure to causes which ordinarily produce only common catarrh. Yet it occasionally occurs in the adult, generally as a consequence of its extension from the throat to the larynx.

True croup, or membranous laryngitis, is diphtheric in character, and it is usual to treat it as if diphtheria were present. It is a disease of the most grave character, and no time should be lost in obtaining skilled medical advice. The early symptoms are restlessness, feverishness, and a throaty cough ; the voice soon becomes hoarse, and the cough acquires a metallic character. There is great difficulty in breathing, owing to obstruction of the larynx, and as the obstruction increases the chest between the ribs and below the breast-bone is drawn in at each inspiration. After a while the lips and face become pallid or livid, great restlessness and delirium occur, and unless an improvement is seen the child becomes unconscious, the breathing becomes more and more difficult, and death intervenes.

As to treatment, the advice of the physician should be strictly followed. Absolute isolation should be enforced, and a steam tent should be provided, the steam being charged with some antiseptic such as carbolic acid or thymol. In a large number of cases the operation of tracheotomy will be found necessary.

There is, perhaps, no disease to which the human body is subject, the progress of which is so frightfully rapid. In a few hours after the attack, the morbid secretion is often formed to such an extent as to prove inevitably mortal ; yet the inflammation of which it is the result might have been checked by immediate vigorous and judicious treatment. It is, therefore, of the last importance that those who have the care of infants and young children should be familiar with the first signs of the approach of this dreadful malady. Of these a graphic description has been given by Dr. Cheyne, who had abundant experience of the disease in situations in which it is but too prevalent. After pointing out the importance of attending to the first appearance of hoarseness, which in very young children does not usually attend common catarrh and, consequently, when observed in a child living in a district which generates croup, is always much more deserving of immediate attention, especially if accompanied with a rough cough, than it would be after puberty, Cheyne says :—

" In the approach of an attack of croup, which almost always takes place in the evening, probably of a day during which the child has been exposed to the weather and often after catarrhal symptoms have existed for several days, he may be observed to be excited ; in variable spirits ; more ready than usual to laugh or to cry ; a little flushed, occasionally coughing, the sound of the cough being rough, like that which attends the catarrhal stage of measles. More generally, however, the patient has been for some time in bed and asleep before the nature of the disease with which he is threatened is apparent ; then, perhaps, without awaking, he gives a very unusual cough, well known to any one who has witnessed an attack of the croup ; it rings as if the child had coughed through a brazen trumpet ; it is truly a *tussis clangosa* ; it penetrates the walls and floor of the apartment, and startles the experienced mother : ' Oh, I am afraid our child is taking the croup ! She runs to the nursery, finds her child sleeping softly and hopes she may be mistaken. But, remaining to tend him, before long the ringing cough, a single cough, is repeated again and again ; the patient is roused and then a new symptom is remarked ; the sound of his voice is changed, puling and as if the throat were swelled ; it corresponds with the cough ; the cough is succeeded by a sonorous inspiration, not unlike the kink in pertussis—a crowing noise, not so shrill, but similar to the sound emitted by a chicken in the pip (which in some parts of Scotland is called the roup, hence, probably, the word croup) ; the breathing, hitherto inaudible and natural, now becomes audible and a little slower than common, as if the breath were forced through a narrow tube ; and this is more remarkable as the disease advances. A blush of inflammation may sometimes be detected on the fauces and, in some rare instances, a slight degree of swelling round the larynx, and the child complains of uneasiness in his throat and says he is choking. The ringing cough, followed by crowing inspiration, the breathing as if the air were drawn into the lungs by a piston, the flushed face, the tearful and blood-shot eye ; quick, hard, and incompressible pulse ; hot, dry skin ; thirst and high-coloured urine—form a combination of symptoms which indicate the complete establishment of the disease. Sometimes the symptoms enumerated subside about midnight, even in the absence of medical treatment ; perhaps to return in the course of the following evening. From seven or eight o'clock till midnight this complaint is always at its height ; but in general, unless the patient be treated with promptitude and judgment, the disease may be expected to terminate fatally ; a new order of symptoms, the second stage of croup, as it is called, taking place in the course of the next day."

CROUP, FALSE

False croup, or spasmodic laryngitis, is a disease the symptoms of which are very alarming to the onlooker, though they rarely, if ever, end fatally. A child, usually not more than four years of age, goes to bed apparently well. Then without warning, in the small hours, he is awaked by a great difficulty in getting his breath. There is a loud metallic cough, and great difficulty accompanied with noise, in getting the air to pass through the larynx. Then in a short while relief spontaneously occurs, the spasm relaxes, and most of the symptoms disappear. Next morning the child wakes up as well as usual.

The treatment is mostly of a preventive nature. Cold and damp should be avoided. On the other hand as much time as possible should be spent in the open air. Warm woollen clothing should be worn, and the throat should be examined in order to ascertain whether adenoid growths or tonsils require to be removed.

CROUP, TREATMENT OF

In both true and false croup the attack comes on so suddenly that it is very important that those who are with the child should know how they may relieve the distressing symptoms while waiting the arrival of the physician. To a child two years old the nurse may give at once twenty or thirty drops of wine of ipecacuanha and repeat it in ten minutes if the child is not relieved. The warm bath is also useful and the foot bath with mustard. The room should be warm and the atmosphere may be made moist by keeping a kettle of water boiling on the fire. A sponge wrung out of hot water and applied under the chin often gives great relief. Care should be taken with the diet of a child who is subject to croup. It should never be allowed anything but simple and easily digested food, the evening meal especially being light, consisting principally of bread and milk. In any inflammation of the lungs or air-passages the child should be kept in a room the temperature of which should never be allowed to fall below 70° F., and should ordinarily be higher than that. Flannel should be worn next the skin and all exposure must be carefully avoided for a long time. To relieve the thirst, which will often be very great, a little water should be given frequently. The diet, which should always be light, will be prescribed by the physician. When there is any fever, it is better to keep young children in bed; infants will want to be held sometimes in the lap, but they should be kept in bed the greater part of the time, and older children should be kept in bed though not very sick. A warm gown may be put on over the nightdress and they can amuse themselves, if so disposed, with books and toys.

CURVATURE OF THE SPINE, ANGULAR

See Spine, Angular Curvature of the.

CURVATURE OF THE SPINE, LATERAL

See Spine, Lateral Curvature of the.

CUTICLE

See Epidermis.

CUTIS VERA, OR TRUE SKIN

See Corium.

CUTTING THE TEETH

At about the sixth month after birth the process known as the eruption of the teeth begins. It is not, as the common expression "cutting the teeth" would indicate, a process of laceration, tearing or cutting, but of removal of impeding tissue by absorption, which allows the passage of the teeth through the gums. There is no absolute uniformity either as to the time or the order of eruption. The rule is that the lower teeth precede the upper of the same class two or three months: but not infrequently the upper precede the lower by the same difference of time. The usual order of their eruption is as follows:—

2 Central incisors between the 6th and 8th months.

2 Lateral incisors between the 7th and 10th months.

2 Canines between the 14th and 20th months.

2 First molars between the 12th and 14th months.

2 Second molars between the 20th and 36th months.

The lower set consists of the same number of teeth, known by the same names. They appear, as a rule, in the same order as the upper teeth, generally, as we have said, preceding the latter by a few weeks.

CUTTING THE PERMANENT TEETH

The following are the times of cutting the permanent teeth:—

Age.	Teeth cut.
6 years	Anterior molars.
7 ,,	Central incisors.
8 ,,	Lateral incisors.
9 ,,	Anterior bicuspids.
10 ,,	Posterior bicuspids.
11 ,,	Canines.
12 ,,	Second molars.
17–25 ,,	Posterior molars (wisdom teeth).

DAMP BEDS

See Beds, Damp.

DAMP FEET

The fact that wet and cold feet are so prolific of disease should make us very careful to avoid the cruelty of fitting up schools and similar places without making adequate provision for the welfare of their young occupants. The circumstances in which wet and cold feet are most apt to cause disease are those in which the persons remain inactive and where consequently there is nothing to counterbalance the unequal flow of blood which then takes place towards the internal parts ; for it is well known that a person in ordinary health may walk about or work in the open air with wet feet for hours together without injury, provided that dry stockings and shoes be put on immediately on coming home. It is therefore not the mere state of wetness that causes the evil, but the check to perspiration and the unequal distribution of blood to which the accompanying coldness gives rise.

DANDRUFF OR SCURF

In this condition there is much itching of the scalp and, when the head is scratched—to which there is constant temptation,—scales are loosened and fall off in noticeable quantities, especially after the use of the brush. Occasionally, particularly if the condition be ignored, the hair comes out—that is to say, it becomes thin, but there is no baldness, either general or in patches. Dandruff should never arise where the head is kept clean systematically. Frequent brushing and the use of a hard brush are better avoided. Every night such an ointment as the following should be rubbed into the scalp for a time : Precipitated sulphur, 1½ drachms ; cocoa butter, 2½ drachms ; castor oil, 4½ drachms ; Balsam of Peru, sufficient to scent. When there is much falling out of the hair, add to this pomade Tincture of Spanish Fly, ½ drachm. The use of the ointment should be persevered with until the scurfiness has disappeared.

DEADLY NIGHTSHADE

The berries of Deadly Nightshade are often gathered and eaten by children. They produce nervous tremors and symptoms resembling intoxication, as well as vomiting and griping, and the pupil of the eye becomes remarkably dilated. If the quantity eaten be sufficient—and a very few berries will suffice,—the symptoms are soon succeeded by convulsions and death. The treatment consists in the immediate administration of an emetic, or the use of the stomach pump ; then a brisk cathartic, and lastly, repeated doses of vinegar, as recommended after opium. Nearly the same symptoms are produced by hemlock, thorn apple, and tobacco, and a similar treatment is called for.

DEAF AND DUMB, THE

When a child is born deaf, or becomes deaf before it has learned to talk, it is said to be deaf and dumb, or a deaf-mute. In some cases the child is deaf from a disease which has also rendered it stupid intellectually ; but as a rule a child becomes a mute only because it has never heard the sound of speech. In such cases the child has no idea of what spoken language is. It was once supposed most mutes were born deaf ; but this is not the case, one half in some schools being known to have been born with power to hear. It must be borne in mind that a blow on the head, as from a fall, may entirely destroy the hearing while the child is a mere infant. But very often no such accident can be assigned as the cause of deaf-dumbness. However, it will then be found that the child had a severe attack of fever, and perhaps convulsions in early infancy, or it may have had severe catarrh of the chest, or scarlet fever, measles, or whooping-cough, with or without running from the ear. Any one of these may be the direct cause of deafness and the child thus deprived of hearing cannot learn to talk. Deaf-dumbness may be hereditary. This has been noted in a family where the mother was very deaf; all the children were all but deaf, and some of them so deaf and at so early an age as to be dumb. In such cases there may be a grave doubt as to the propriety of members of such a family marrying and thus running the risk of propagating a mute stock. This should be one of the considerations in the intermarriage of relations, especially if among the latter there should be either a tendency to deafness or to deaf-dumbness. When deaf-dumbness is plainly due to an accident or to disease in infancy, without there being any other cases of deaf-muteness in the family, or any signs of catarrhal deafness,there would be no danger of transmitting the defect to posterity.

DEAF AND DUMB, EDUCATION OF THE

Physicians are constantly called on to decide whether a child is deaf and dumb, and if it be, to suggest a cure if possible, and if not, to advise a plan for the proper education of the little patient. In very young children it cannot always be readily decided whether total deafness, and hence prospective dumbness, exists or not. Without being obliged to determine whether the child is totally deaf, a physician may find, on examination, that it is too deaf to learn to talk by hearing others speak and, without further losing time, he should advise its parents to arrange for its proper education in another way. The education of deaf-mutes is accomplished by the use of signs, or "finger language," and by the means of "lip-reading," and phonetic writing or visible speech. Before describing these methods it must be borne in mind that it is not our object to advocate any one method to the exclusion of the others. It is believed that all have advantages and disadvantages. The only object in alluding to these various methods is to let parents know what can be done for their children afflicted with deaf-dumbness. The sign-language is the most common form of communication in the institutions for the mute in the United Kingdom. It has been found that where this form of language is used, no other method can be successfully introduced at the same time. Lip-reading is the ability on the part of the mute to understand what is said to him by watching the lips of the speaker; it is taught very largely in Germany and is often called the German method. By this system, also, the dumb are taught to speak as well as to understand speech. Their articulation, of course, is not like ours, being peculiar and unnatural in sound, yet entirely intelligible. The writer has conversed in ordinary tones, in German, with German deaf and dumb children in Vienna, and was perfectly understood by them, the children replying in German that they perceived he was a foreigner, so delicate was their perception of the motion of the lips. Phonetic writing or visible speech, the system of A. Melville Bell, is based on the physiological action and position of the vocal organs during speech, and is practically an alphabet of sounds, in which the symbols, either printed or written on the blackboard, inform the child how to place its lips, tongue and palate, and produce a vocal sound. It has been successfully employed in the United Kingdom and in America. Lip-reading and visible speech may be of great value in the education of children who have become deaf after having learned to talk in the first four or five years of life. Their conception of what speech is and their ability to use it are invaluable aids in their further education by means of lip-reading and articulation, or by visible speech. Hence, no matter how deaf a child may become after it has once learned to talk, it should be discouraged in the use of dumb signs and encouraged to go on talking. It is desirable that a mute who is to be taught lip-reading and talking should begin his exercises before he is seven years old. It will then require about eight years of study and practice in this way, but at the end of that time he will be able in most cases to converse with and understand any one he meets. In most instances mutes thus educated can converse in several languages. It is to be feared that, in the case of children, deafness is too often mistaken for stupidity. "Very sad," says Dr. Moore, "it is to think how often a child is thus punished for his misfortune and it may be irremediable injuries are inflicted on the mind or temper of this poor victim of unintentional injustice. It is hardly necessary to insist upon the care which is requisite in examining the state of the hearing in a child, or to refer to the fact that children will often say, and doubtless think, that they hear a watch when they do not. The descriptions of the deaf are generally very minute, but never very poetical; and this arises from the defective association between sights and sounds, on which so much of sentiment and suggestion depends. They are apt to embrace all that is seen, but to omit all the audible, all the voices of life, and hence all their dramas are pantomimes. For, alas! all nature is dumb to them—at least, as regards vocal expression; but then, here again rejoice with them; for if their powers of attention be properly cultivated, they certainly learn more readily and more deeply to understand the visible language of action and the meaning written on the face of every living thing. Hypocrites had, therefore, better avoid the deaf, or their dark souls will be read through their disguises of light, for the deaf are good practical physiognomists, and are always keenly on the watch to discover the meaning of the spirit in every movement of the body and every feature of the face; for every soul seeks its highest interest in sympathy with others."

DEAF CHILDREN, EDUCATION OF

There is a large number of deaf children who are by no means deaf and dumb, having lost their hearing after they had learned to talk. After a child has once learned to talk, no matter how deaf it may become, it should be encouraged in every way to continue to use speech and not signs in communicating with friends and family. In order to induce him to continue to speak, his signs must be disregarded. All children who grow deaf will soon begin to make signs, and unfortunately the latter are encouraged by being answered in the same way. It would be very easy to make such a child look at the mouth and understand the signs made by the lips. But many children are too hard of hearing to escape being under disadvantages at ordinary schools, where they are competing with hearing children.

Such children, on account of their bad hearing, are often imposed upon both by companions and instructors. Do as they may, such children must fall behind in their studies. But it is not desirable to isolate these unfortunate children in separate classes, because it not only draws painful attention to them, but it is highly desirable that they should continue their studies among those with whom their lives are to be spent. Nevertheless, some allowance should be made for their defective hearing. The first step in this direction is to find out whether the child is deaf or inattentive ; if he is deaf, he cannot fail to be inattentive. A child is, as a rule, unaware of his defective hearing, especially a young child, at the beginning of his deafness ; it is, therefore, the duty of his elders to find out and determine the amount of his deficiency. It can be expressed accurately in feet and inches. It has been shown, by an American physician, that of 8,715 cases of ear disease, 2,175 or 25 per cent. were children under 14 years of age, all of whom were pupils in the public schools. In such children, the distance at which they can hear the teacher's voice should be carefully measured by testing with words and sentences, and there they should sit, the children with good hearing being placed farthest off. Nothing but the teacher's voice should be used, and that in ordinary tones, in these tests, for the child goes to school to hear those sounds.

DEAFNESS, CHRONIC, WITH DISCHARGE FROM EAR

When chronic discharge from the ear has become fully established, the usual course on the part of badly-taught patients is to desist from all treatment. This is hardly to be wondered at, for their experiences with domestic treatment have, as a rule, not been satisfactory. But now is the time that something should be done to rectify mistakes in treatment and to try to check the discharge. Science has placed in the hands of the aural surgeon special means for the relief of ear diseases which he alone can apply, and of professional aid the sufferer should take advantage. There is one direction that should be given here to the non-professional reader for the management of an ear affected with a chronic discharge. It is to keep it perfectly clean by means of syringing once or twice daily, or oftener if necessary. This will tend to keep down the disease and place the ear in a better condition for proper treatment when the surgeon has been called in for aid.

DEAFNESS, CHRONIC, WITHOUT DISCHARGE FROM EAR

Very often earache is not attended with a discharge. This is equal to saying there has been no rupture of the drum, though matter may have formed behind it. In these cases the inflammation goes down, either of its own accord, or because the treatment has allayed it. The matter, therefore, which may have formed is small in quantity, and has either escaped into the throat by the Eustachian tube, or still remains in, though not filling, the cavity of the drum. The ear continues to feel stuffed up and is liable to suffer from every change of the weather, or every cold the patient may catch. Such cases are the foundation of chronic hardness of hearing and are usually found in connexion with chronic catarrhal disease of the throat and nose. There is more or less buzzing or singing, either steady or with the pulse in both cases, or in one only, and sometimes a dizziness in the head—all of which greatly distress the patient and frequently depress his spirits. In this form of ear disease, ear-dizziness may be a prominent feature. Gradually too, the hearing fails in one or both cases ; the patient begins to lose some words first at church, or in lectures ; then conversation begins to be attended with some difficulty ; a sense of confusion in the head comes on when in the midst of great noises, as in the street, or in a large room filled with a number of talking people. This kind of ear disease, chronic catarrh of the ear, is the most common cause of hardness of hearing and deafness, and as such is the object of many forms of treatment and much quackery. It may be said at the outset that nothing can be put into the external ear which can in any way benefit this form of deafness. As a rule, any kind of drops put into an ear affected with chronic catarrh will do more harm than good. The disease lies beyond the drum-head—in the drum cavity and the Eustachian tube. Now, as the drum-head shuts off, air-tight, the middle ear from the external ear, drops put into the latter can by no means reach the former. They only fall on the drum-head, and irritate it. Treatment, to be of avail, must be directed to the throat, the nostrils, and the Eustachian tube ; possibly through the latter to the drum-cavity. But that is a matter to be left to the judgment of the surgeon. The body must be properly, that is, warmly, protected with heavy underclothing and the feet must be most carefully kept warm and dry. The condition of the feet has a most intimate relation with the welfare of the throat and the ears. If, on going into the open air, the ear or ears should feel the cold until they ache, then they must be protected either by ear-muffs, a veil, a scarf, or a piece of cotton in the mouth of the canal of the ear. Of course, mere coldness of the auricle in very cold weather is to be expected and is not specially prejudicial to hearing. What is alluded to here is earache, deep in the ear and throat under the ear and jaw, and hence the words of caution as to protection. But in no case must cotton be worn in a running ear.

DEBILITY WITH CONSTIPATION, MIXTURE FOR

See Mixtures.

DECOCTIONS

Decoctions are aqueous solutions of the active principles of vegetable substances obtained by boiling. This method is adopted in order to obtain principles which cannot be separated by simple infusion in cold or even boiling water. If the solution employed in making a decoction is dry, it will be better to pound it so as to expose a larger surface to be acted upon, and in like manner if fresh it should be cut into slices. They are generally strained when in a cold state. Small quantities only should be made at a time, as they are apt to change.

Aloes, Compound Decoction of.—Take of extract of socotrine aloes in powder, myrrh in powder, and saffron, of each a drachm ; extract of liquorice, half an ounce ; carbonate of potash, two scruples ; water, a pint. Boil down to twelve ounces and strain, then add four fluid ounces of the compound tincture of cardamoms. The dose is from one to four tablespoonfuls. This preparation acts as a tonic and mild purgative and is useful in constipation and female irregularities ; also when the action of the liver is sluggish, benefit may be received from its use.

Barley, Decoction of.—Take of pearl barley, two ounces ; water, five pints. Wash the barley in cold water, reject the washings, and having poured over it half a pint of water, boil for five minutes ; repeat this also and, having added the remainder of the water boiling, let the whole boil down to two pints, then strain. Barley water thus made is of frequent employment in the sick-room and is serviceable in all cases of fever and inflammation, especially in inflammatory affections of the urinary organs. It may be taken in any quantity. To this simple decoction of barley various substances are sometimes added, such as sliced figs, raisins, liquorice root, slices of lemon, and sugar-candy.

Oak Bark, Decoction of.—Take of oak bark, bruised, an ounce ; water, a pint. Put into a covered vessel and boil for ten minutes, then strain. The dose of this preparation is from two to six tablespoonfuls. Formerly this preparation was used as a tonic, but its use in this respect has been superseded by quinine. It is as an astringent that it is principally employed now. It is used as a gargle in relaxed throat, internally in diarrhœa, and also as an injection and lotion.

Sarsaparilla, Compound Decoction of.—Take of Jamaica sarsaparilla, cut transversely, four ounces ; boiling water, four pints. Macerate in a covered vessel placed near the fire for four hours. Remove the sarsaparilla, bruise it, and place it again in a covered vessel along with one ounce each of the following substances ; namely, guaiacum wood turnings, sassafras root in chips, bruised fresh liquorice root, and three drachms of mezereon bark. Macerate for four hours longer, then strain. Opinion is divided as to the utility of sarsaparilla, some regarding it as inert, while others look upon it as an excellent remedy in cases of chronic rheumatism and in venereal affections ; also in obstinate skin diseases. The dose is from three to six fluid ounces.

DEFORMITIES AND DISTORTIONS

Deformity of the person may be classed under two principal heads : malformation and distortion. The former is, for the most part, congenital, and is usually characterized by the deficiency or redundancy of parts, or by imperfections and irregularities of structure. The latter, arising generally after birth, comprises all permanent deviations from the natural shape or position which are effected by the influence of external or internal force in parts originally soft and flexible, or such as have acquired unnatural pliancy by accident or disease. It is to the latter class of deformities only that our attention need be directed.

(1) Every part of the body capable of independent motion is furnished with two sets of muscles, acting in contrary directions, the purpose of which is obviously to bring the part back to its place after movement in either direction. In the position of equilibrium, these muscles are not in a state of absolute relaxation, even during sleep ; on the contrary, they continue to act with considerable energy each exactly counterbalancing the other. This is called their tone,

or tension, and it is calculated to give great steadiness to the parts thus held at rest between opposite forces. But if one set of the muscles should be suddenly cut across, the tension of their antagonists still remaining in action, the consequence would be a movement in obedience to the latter till the contraction had reached its limit ; and the part in question would permanently retain the position into which it had thus been moved. The same effect would result if the muscle, instead of being divided, were paralysed by the interruption of its nervous communication with the brain. Again, if the tone of one muscle were increased by spasm, or otherwise, so as to give it a decided preponderance over its antagonist, the result would be similar. These considerations will sufficiently explain the nature of one large class of distortions, namely, those which result from affections of the brain, muscles, and nerves. The names given to these distortions are hemiplegia, or drawn mouth ; strabismus, or squinting ; hysteric contractions, wry neck, and club foot. The list of distortions depending on a morbid condition of the muscular or nervous functions might easily be extended.

(2) But by far the most common and most important class of these affections is that which originates in disease of the bones. The firmness and rigidity of the bones depend upon the due proportion of the earthy matter, phosphate of lime, that enters into their composition. If the proportion of this ingredient be too great, as in old age, and in the disease called *fragilitas ossium*, they become brittle and are broken by the slightest cause ; if it be too small, they become unnaturally pliant and are distorted by the pressure of the superincumbent weight, or the contraction of the muscles. The principal distortions and deformities arising from disease and weakness of the bones are rachitis, or rickets ; curvature of the spine, lateral and angular ; and knock-knee. Diseases of a similar kind frequently occur in the bones and joints of other parts of the body ; they require similar treatment, and are followed by analogous consolidations and distortions. Rheumatism and other disorders, and even common inflammations occurring in a high degree within the joints or in their neighbourhood, occasionally produce like effects.

(3) Distortions are sometimes occasioned by the contraction of other parts than those which are concerned in motion.

(4) Another class of distortions may arise from external pressure ; as of the bones and cartilages of the chest from tight stays ; or of the phalanges of the toes from ill-made shoes. Instances of this kind of distortion are to be found in the disastrous results of tight-lacing and in corns and bunions caused by the wearing of boots and shoes made to suit the whim of fashion instead of adapted to the foot.

DELIRIUM

Delirum is a symptom which implies acute temporary exalted disorder of the mind, varying from slight incoherence to complete and violent insanity. The condition may arise either from organic disease of the brain or its covering, or from a poisoned condition of the blood, as in acute inflammatory diseases, or in alcohol poisoning. It may also occur in connexion with acute mania, or nervous exhaustion. Beyond applying cold to the head, and the avoidance of light and noise, the treatment of delirum must be left entirely to medical men.

DELIRIUM TREMENS is, in almost every case, the consequence of excessive drinking, the name of tremens being given to it from the nervous trembling of the voluntary muscles which accompanies it, keeping the eyes, hands and other parts in constant motion, which, however, is only a part of that universal agitation and restlessness which characterize the disorder and distinguish it in a great degree from insanity, which it otherwise greatly resembles. There may be said to be two varieties of delirium tremens: one of spontaneous origin after prolonged drinking; the other coming on as the result of an accident to those who are habitual drinkers, without being drunkards. The cause is almost invariably excessive spirit-drinking. The other kind of delirium tremens is not unfrequently seen in brewers' draymen, who might be looked upon as splendid specimens of men; yet if they meet with any accident, they are very liable to a kind of delirium which adds considerably to the risk from their injury.

The malady consists inevitably of hallucinations and trembling of different parts of the body. The chief symptoms are sleeplessness and restlessness, with delirium generally active, but not very violent. The objects seen are very often loathsome creeping things, rats and serpents and the like, in the existence of which the patient fully believes. When hearing is affected, and that is generally the case, he hears people calling him names, taking away his character and so on. He will not rest in bed, and is constantly getting up, but will lie down again quietly if told to do so. As to his physical condition, the face is usually pale and wild-looking, the skin moist and clammy, the tongue coated and tremulous and the pulse quick and soft. There is complete loss of appetite and the bowels are generally confused. During the night he is worse than during the day. This does not last long: if spirits are abstained from, the condition ordinarily ends in eight-and-forty or two-and-seventy hours, in profound sleep, from which the patient wakes weak, but in his right mind and ordinarily very repentant. Occasionally the condition terminates fatally; if so, the temperature rises and he gets no sleep; feebleness increases till the delirium is muttering merely, while death commonly comes in weak convulsions.

In the treatment of delirium tremens, the strength of the patient is the great thing to look to. If that is good, all should go well. If the attack comes on after a bouse of six or eight days, during which the patient has eaten nothing, or but little, the first thing is to get him to take food. If stimulants are necessary, the aromatic spirit of ammonia and spirit of chloro form will be found best. With these precautions—giving, too, a little brandy, if necessary—the patient will do well enough for eight-and-forty hours, very miserable, it may be, but in no risk whatever. At the end of that time, his bowels having been well opened in the interval, let him have a good dose of morphia subcutaneously, half a grain or so, and be put quietly to bed. Tipplers, if they have had a debauch after a long course of habitual drinking, make perhaps the worst patients. Their appetite and digestive powers are completely gone and they have no reserve of strength; very likely they have had one or two attacks previously, but disregarded them. Such must be handled with care; their strength must be kept up, and stimulants of any or every kind given if necessary, and the critical period must be watched for with care. If it come, then opium in full dose; or if it do not come, opium or chloral must still be given to try to bring it on. It is in such cases that the injection of morphia under the skin is of most manifest benefit. If the temperature go up, cold must be applied, best, perhaps, in the form of the tub-pack; but if the head is very hot and the face flushed, the shower bath may be tried, or perhaps what is better, ice applied while the rest of the body is packed. But nourishment must be given hour by hour, or even less, or the patient may sink. The other variety is comparatively mild; a little extra drink may have induced an attack of the horrors. For this, perhaps, the best remedy is a good emetic and purge, or a good long walk. Though it may be true that it is beneficial to administer to the sufferer, while he is yet delirious, a measured quantity of drink to soothe his system—the principle being that of "a hair of the dog that bit him,"—as soon as the fit is over, all necessity for intoxicants has ceased and the patient should be induced to become a total abstainer forthwith. If he does not give up the drink altogether, he will become a waster. There is no other alternative, and it is because delirium tremens is the hallmark of the likely drunkard that, on the occasion of the first attack—which may have been precipitated by a prolonged debauch and not be due to an acquired habit—and while, therefore, reform is yet decidedly practicable, the friends should put forward every effort to reclaim the victim. Cases are on record where friends have sacrificed themselves to save friends and have been successful. One intimate friend might, for the sake of the patient and to set an example, agree to become teetotal at the same time. Another might arrange to live with the victim and superintend (unostentatiously) his manner of living.

DENTINE. *See* CEMENTUM.

DEODORIZER

A deodorizer merely masks or destroys the bad odour without reaching the seat of the evil. Its action is not strictly on the putrid product, but merely on the sense of smell, which it blunts to the action of the offensive vapour. During the Middle Ages, when the plague, black death, sweating sickness, and pestilential fevers desolated the cities of Europe, immense importance was attached to the use of perfumes as protectives against contagion; and fumigations, with costly spices, volatile oils, and rich-smelling Oriental drugs, were largely used in the houses of the rich. Such measures were, of course, entirely useless. Plenty of smells, though nauseous, are harmless, and what is needed at the same time as a deodorizer is a thorough disinfectant. Some disinfectants serve in the dual capacity.

DEODORIZER, A GOOD

A pound of sulphate of iron (copperas) dissolved in two quarts of water, is an excellent deodorizer, and has no disagreeable smell, Pour a little of the mixture into the vessels after washing them and keep it in them. The mixture will stain towels.

DERBYSHIRE NECK

See Goître.

DERMA, OR TRUE SKIN

See Corium.

DEVONSHIRE COLIC

This disease, which is attended with severe griping pain in the bowels, was at one time common among the cider-drinkers of Devonshire. Its cause was long unsuspected. Among painters, especially those engaged in working white or red lead, and who are not exceedingly cleanly in their habits, the disease is of frequent occurrence.

DEVONSHIRE COLIC, SYMPTOMS OF

One way or another lead is introduced into the system ; by and by a blue line forms on the gums and the sufferer begins to be tormented with obstinate constipation and colic. If the poison continue to be absorbed, paralysis of the muscles of the forearm, which act on the back of the hand, will follow, giving rise to what is technically known as dropped wrist. If the influence of the poison continue, the muscles waste, and paralysis may extend to other parts of the body. The signs of lead colic resemble those of ordinary colic, but the pain is more severe, more twisting in character and more persistent. The constipation, too, is very obstinate and it is not very easy to get the bowels to act at first.

DEVONSHIRE COLIC, TREATMENT OF

The best way to effect the action of the bowels is by giving full doses of Epsom salts and Blauber's salts mixed—a couple of drachms each,—repeated every two hours till the bowels are moved. Sulphate of magnesia (Epsom salts) and dilute sulphuric acid, in the form of a purgative lemonade, should be continued for a time, until the bowels begin to act more comfortably. As soon as the bowels have been freely moved, it is advisable to set about removing the lead which has been absorbed and deposited in the system. For this, iodide of potassium in full doses—ten grains or so—should be given and continued for a considerable length of time, so as thoroughly to remove all traces of lead from the system. The application of electricity to the bowels has often been found useful, but it is more valuable as an application to the wasted and stiffened muscles of the forearm.

DIABETES

(Greek, **diabetes,** "a running through"; from **dia,** "through," **baino,** "I go").

Diabetes is a disease characterized by a considerable discharge of urine, for the most part excessive, having a faint apple smell and sweet taste, accompanied with great thirst and general debility. The quantity of urine evacuated by diabetic patients is generally profuse and, in some instances, has amounted to the astonishing increase of sixteen or even thirty quarts in twenty-four hours. The distinguishing sign of diabetes is the presence of sugar in the urine. Every excessive urinal flow unaccompanied by this symptom belongs to, or forms, a different complaint, and is very generally the consequence of some nervous disorder, or of a simple relaxation of the uriniferous tubes.

DIABETES, CAUSES OF

This disease is occasionally to be

met with in early life, but generally occurs at a more advanced period, especially in constitutions broken down by intemperance. The predisposing and exciting causes are chiefly such as debilitate the general system, as the abuse of spirituous liquors, cold applied to the body, immoderate evacuations, crude unwholesome diet and the excessive use of mercury. It is at present a moot point whether the liver or the blood is at fault in this disease, nor is it yet settled what part the nervous system may play in this affliction, but it is an ascertained fact that irritation in certain parts of the brain will produce sugar in the urine. The kidneys are not the seat of mischief; they merely allow the sugary urine to pass, and in so doing suffer more or less in the process.

DIABETES, SYMPTOMS OF

Diabetes often makes its approach insidiously and may arise to a considerable degree and exist for some weeks without being particularly attended to. It is accompanied generally with a most voracious appetite; an insatiable thirst; a dry, harsh skin; a clammy tongue; a sense of weight, or even acute pain in the loins; and frequently with a hay-like scent or odour issuing from the body. The kidneys discharge a fluid usually very limpid and large in quantity, though sometimes tinged with green like a diluted mixture of honey and water, and possessing a sweet taste more or less powerful; the pulse is quicker than in health; the flesh wastes rapidly; and, in a very advanced stage of the disease the feet and legs swell and the skin becomes cold and damp. A troublesome costiveness is frequently present and sometimes an affection of the lungs.

DIABETES, TREATMENT OF

The treatment of diabetes generally consists in placing the patient upon a diet from which all starchy or saccharine articles of food are rigidly excluded.

Dr. Burney Yeo, in his *Manual of Medical Treatment*, succinctly summarises the food indications as follows: (1) Avoid all substances containing starch or sugar; (2) Give as much animal food—butcher meat, poultry, fish—as can be comfortably digested and assimilated, with the exception of liver and oysters; (3) Replace the prohibited carbohydrates by suitable substitutes from amongst the various animal and vegetable fats and oils; (4) In the case of stout and well-nourished diabetics, encourage muscular exercise in order to consume the excess of sugar in the blood, but be careful not to push this to the extent of fatigue. A return to ordinary diet after a cure has been apparently effected is a cardinal blunder. Diabetics must learn to accommodate themselves to a stringently modified diet on the lines indicated for the rest of their lives. That way and that way only lies length of days. It will be useful to exhibit a list of tolerated articles of food and drink and a list of forbidden articles.

Food and Drink allowed in Diabetes

Butcher meat
Ham, bacon and tongue
Poultry and game
Fish
Meat extracts, soup and preserved provisions, in the preparation of which sugar has not been used.
Jellies without sugar
Eggs
Cheese, butter, cream
Diabetic substitutes for bread
Saccharine
Cabbage, endive, spinach, broccoli, Brussels sprouts, lettuce, watercress, cucumber, mustard and cress, spring onions

Nuts
Tea, coffee, Cocoa (from nibs), either unsweetened or sweetened with saccharine
Water
Soda, Vichy, Carlsbad, Bourboule, Apollinaris, claret, burgundy, dry sherry, sauterne, chablis, dry champagne, brandy and whisky (in small quantities unsweetened)
Milk (very sparingly)
Fresh lemon-juice
Bitter ale

FOOD AND DRINK FORBIDDEN IN DIABETES

Liver
Oysters and shellfish
Sugar, treacle, preserves
Bread
Oatmeal
Biscuits
Sago, tapioca, rice, arrowroot
Macaroni, vermicelli
Pastry, farinaceous puddings
Potatoes, carrots, parsnips, beans, peas
Sweet and preserved fruits
Sweet and sparkling wines
Malt liquor
Cider, lemonade, ginger-beer, liqueurs
Cocoa, chocolate
Sweet spirits
Ices

The most usual substitutes for ordinary bread are gluten bread, bran bread, soya bread, almond cakes and torrified bread. The last consists of thin slices of ordinary bread toasted before the fire till they are not only browned but almost blackened, to destroy the starch and gluten.

DIAPHORETIC COOLING DRAUGHT

See DRAUGHTS.

DIAPHRAGM, OR MIDRIFF

The diaphragm, called also the midriff, a thin muscular partition, between the chest and the abdomen, extending crosswise through the body, and attached by its margin to the spine, to the lower ribs on each side and, in front, to the sternum, or breast-bone. It separates the respiratory organs from those of digestion, or rather, the heart and lungs from the stomach, liver, spleen, etc. The diaphragm rises upward within the chest, so as to form an arch, the lungs resting upon its upper surface, while the stomach and liver accommodate themselves to the concavity of its lower surface. It is perforated by the œsophagus, or food-pipe, which passes to the stomach, and by several other important tubes, among which are the great aorta and ascending vena cava. The diaphragm is the principal agent in producing the act of respiration. Every time we breathe, this organ contracts, by which means it descends from its arched shape to that of a plane, or level surface, pushing down the stomach and liver with it. This enlarges the cavity of the chest, while the lungs, which rest upon its upper surface, follow it in its descent, allowing those organs to expand and thereby causing a vacuum within them which is immediately filled by air, which rushes in through the trachea and bronchial tubes, filling up the air-cells. This is called inspiration. The diaphragm then immediately becomes relaxed (unless prevented by the will as in "holding the breath"), and is pushed up by the organs beneath it, assuming its arched shape again, thus diminishing the size of the chest, which compresses the lungs and causes the air within them to be pressed out or expelled. This is termed expiration. An enlargement of the chest, therefore, is accompanied with inspiration and a contraction of it with expiration. In the first the diaphragm contracts and becomes a plane ; in the other it relaxes and is pushed up by the abdominal viscera beneath it. What we call breathing, therefore, is performed entirely on the principle of the blacksmith's bellows, the operation of which is familiar to most persons. Several of the muscles of the ribs assist in expanding and contracting the chest and consequently in respiration.

DIARRHŒA

(Greek, **diarrhoea,** "a flowing through"; from **dia,** "through"; **rheo,** "I flow").

Diarrhœa and dysentery occur at all seasons and in all climates, but are more common within the tropics and, elsewhere, more frequent in hot seasons. A brief consideration of the morbid processes which characterize these affections of the bowel, and the causes that give rise to them will serve to explain their greater frequency in hot weather and in hot climates. Our knowledge of the disease will, however, be gained with less difficulty if it is sought in connexion with some general acquaintance with the anatomical structure of the bowels and their physiological action in health. The bowel (or intestine) consists of a membranous tube about twenty-five feet in length and of varying diameter; its upper or narrower portion, about twenty feet in length, is called the small intestine; its lower portion, which is of much greater diameter and about five feet in length, the large intestine. It is capable of contracting when empty and of very great distension by its contents, particularly under some conditions of disease. The large and small intestines are each divided into parts, which are rather of convenience for anatomical description than based upon anatomical differences of structure. The whole lies coiled up in the cavity of the belly, at various points attached directly to the posterior wall of the cavity and to other organs, but in the main supported by a membranous fold of the peritoneum (mesentery), which encircles the bowel, forming its outer layer, and passes back, to be attached to the parts in the neighbourhood of the backbone, thus allowing a certain amount of freedom of motion to the bowels in the cavity in which they lie. The upper end of the bowel is given off directly from the stomach. This great tube is very far from being a simple membranous canal. It consists of three layers, one outside the other, held together by delicate sheets of membranous tissue. There are, first, the outer layer (serous), spoken of above; secondly, the muscular layer, consisting of fibres encircling the tube, and others running lengthwise; and, third, the mucous layer, which is innermost and constitutes the lining of the tube. This is richly supplied with glands of various kinds. It is thrown up into innumerable folds, which vastly increase its extent of surface; and it is penetrated almost to its surface by fine blood-vessels and absorbent vessels, the walls of which reach so near the free surface as to be, in many places, only covered by a thin layer of the cells (epithelia) which cover the mucous membrane. This surface presents, besides the folds spoken of above, innumerable minute projections (villi), which give it a velvety appearance; they contain the finest twigs of the lacteal, or absorbent vessels. Between the muscular and mucous layers are placed the nerves of the bowels and the blood-vessels, which constitute an extremely rich and fine network. At a distance of nearly four inches from its upper end the common tube which conveys the fluids secreted by the liver (the bile) and by the pancreas, or sweetbread (the pancreatic juice)—the two great digestive glands of the body—enters the bowel. The function of the bowel is much more than a mere mechanical one. The processes of digestion, begun so actively in the stomach, are here continued. And it is through the walls of the intestines, by means of the lacteal vessels contained in the villi, and the walls of the blood-vessels which so closely approach the surface, that the absorption of the digested food-substances takes place. In order that absorption may take place, the processes of digestion must prepare the food. Putrefactive decomposition, with the production of excess of gas, is prevented by the bile, which aids also in converting part of the fat into a soapy solution and which, by its presence, otherwise aids in the digestion of fats. The pancreatic juice converts starchy substances into sugar with energy and, like the bile, digests the fatty portions of the food ; the juices secreted by the intestinal glands possess a feeble digestive power, but are endowed with the property of dissolving various principles of the food (fibrin, albumen) and of converting cane-sugar into grape-sugar. No portion of the food can be absorbed except in complete solution, and the juices of the bowel not only effect this solution by the various chemical processes just spoken of, but they also supply the amount of fluid necessary for the purpose. During digestion these juices are secreted and re-absorbed with marvellous energy and in enormous amounts. But the food eaten is not all capable of complete digestion ; much is insoluble, inert, mere bulk, and incapable of supplying the wants of the body. This must be moved inwards to be ultimately expelled. This is the function of the muscular coat of the bowel. The encircling fibres contract from above downwards, in waves which sweep the contents of the bowel before them—a process in which the longitudinal fibres aid. This is called the vermicular or worm-like motion of the bowel. These fibres belong to the muscular system of organic life and their action is not under the control of the will. They contract under the influence of locally acting causes—as, for example, the distension of the intestinal tubes by partially digested food and the like ; and, being independent of the brain, they have a supply of minute nerve-centres (ganglia) of their own. The processes above described take place most actively in the small intestine ; but absorption still goes on in the large intestine, as is shown by the facts that the bowel contents, hitherto fluid here lose moisture and begin to solidify, and that nutritious and medicinal substances introduced into the bowel disappear and produce constitutional effects. It is very important to bear in mind that the walls of the blood-vessels lie so near the surface of the mucous membrane, that the absorption of some of the dissolved food-substances takes place by simple diffusion through them ; for if fluid, in the ordinary circumstances of health, can thus enter the blood, it is not difficult to understand that it may, in circumstances of disease, pass in the opposite direction out of the blood-vessel into the bowel. The morbid processes which give rise to diarrhœa may consist of an intensification of the healthy physiological processes—such as increased action of the mucous coat, by which the fluid contents of the small intestine are too rapidly hurried on; or an excess of the secretions of the liver, or pancreas, or of the intestinal glands themselves, giving rise to an amount of fluid too great to be readily absorbed, or incapable of absorption by reason of alterations in its character; or the passage of the watery portions of the blood into the cavity of the bowel, such as have been above spoken of; or, on the other hand, diarrhœa may be due to an arrest of the function of absorption; or these conditions may be, as is probably most frequently the case, variously combined. The abundant blood-supply of the bowels, their great functional activity, the elaborateness of their organization, and the complexity of the processes taking place in them, render them extremely liable to functional and inflammatory derangements, both primary—that is, having their cause in the intestines themselves; and secondary—that is, dependent on disorders of other organs, or diseases of distant parts of the body. Diarrhœa is a symptom of disease, rather than a disease itself. In the simplest form of diarrhœa the symptom constitutes the chief, if not, indeed, the only manifestation of illness both to the patient and the doctor, and with a relief of the diarrhœa a cure is established.

DIARRHŒA, CAUSES OF

Exposure to cold not infrequently gives rise to diarrhœa by driving the blood from the surface of the body to the internal organs, thus producing in the bowel an excess of blood (congestion) which is relieved by the escape of the watery parts into the bowel and an increased production of fluid by the intestinal glands. The affection known as "cold," or "catching cold," sometimes manifests itself as a diarrhœa; and "a cold in the head" is not infrequently attended by slight transient diarrhœa, particularly as it is passing off. Exposure to intense heat may also occasion diarrhœa, which is then probably due to some disturbance of the nervous system. The abrupt alternations of hot day temperatures with cool night temperatures is particularly apt to produce it. Over-exertion is likewise not an infrequent cause. Malarial influences are often concerned in the production of diarrhœa, which may then be of an intermittent type. In this connexion are to be mentioned a numerous group of diarrhœas, due to the inhalation of sewer gases, the emanations from cesspools, from decaying animal and vegetable substances, the accumulations of filth about ill-kept yards and dwellings, and the like—causes which abound in hot weather, which are very destructive to health and which are entirely within the control of man. Such atmospheric influences, even when powerless in themselves to originate disease, are active in keeping it up. We once saw several cases of simple diarrhœa of a most obstinate character in one wing of a hotel at the seaside, which were evidently due to the emanation from privies so situated that the prevailing winds blew over them into this part of the house. Elsewhere in the hotel similar cases recovered in a few days, and all the cases in question at last promptly got well, some on being transferred to the main part of the hotel, others on being sent elsewhere. The drinking of water contaminated by similar substances is a cause of diarrhœa not to be overlooked. Diarrhœa is often attributed to change of water by those travelling, when it is, in fact, due to other things—errors of diet, exhaustion and the disarrangement of the regular habits of life. Children and young infants are especially prone to affections of this kind, particularly when teething, and in summer. But the most common cause of diarrhœa is defective or arrested digestion, especially that part of the whole process which goes on in the intestines. The diarrhœa which follows imprudence in eating, both in the quality and quantity of the food, is familiar to everyone. Particular articles of diet will always cause the disorder in some individuals. Articles capable of producing chemical or mechanical irritation of the delicately organized lining membrane of the bowels will give rise to diarrhœa. Coarse, indigestible articles of food, unripe fruit, or fruits containing indigestible seeds or the acid or sub-acid fruits in excess, and large amounts of coarse vegetables, containing much fibrous matter, may be enumerated among these. When the digestion is enfeebled, as it is during the heats of summer, or when the intestines are unduly sensitive, the ordinary food, or even a restricted diet, may be the cause of the trouble. In some cases the accumulation and retention of hardened masses in the bowel occasion diarrhœa by their acting as a mechanical irritant just as coins, rings, and the like, when accidentally swallowed, may occasion similar trouble, which usually forthwith subsides as soon as they are voided. This is true of most of the simplest forms of diarrhœa. As soon as the offending substance, the irritant, is voided, the trouble to which it has given rise ceases, unless inflammation has resulted, in which case the diarrhœa may continue, but with a tendency to ultimate recovery. Diarrhœa is a symptom of various constitutional states and diseases; among these, general debility from various causes, from deprivation of food, from long continued nursing, may be mentioned; so also, congestions of the liver and other organs, the last stages of consumption and of some forms of Bright's disease of the kidneys. For the last of these, it is not to be incautiously checked, as by this means the tissue waste, which the diseased kidneys are no longer able to discharge from the body, is got rid of.

DIARRHŒA, SYMPTOMS OF

Pain is usually present, often of a colicky nature, and relieved by an action of the bowels. It is apt to be more or less constant, with tenderness when there is actual inflammation (enteritis) in which case fever is present. Diarrhœa is occasionally unattended by pain of any kind. The movements of the bowel may vary in number from three or four in the twenty-four hours to twenty or more, and their character is not less variable than their number. If the attack be due to acute indigestion, vomiting may be present; it does not, however, as a rule occur.

DIARRHŒA, TREATMENT OF

It is of the utmost importance in every case of diarrhœa to ascertain and correct the cause promptly; also the diarrhœa itself if it do not shortly cease. The heat of summer, the direct action of the sun, the suddenness of temperature changes, and the diminished protection afforded against them, exhaustion and fatigue, enter largely as factors in the production of summer diarrhœa.

Many things at other times harmless act as exciting causes when we are tired and used up. The management of a simple case of diarrhœa demands the consideration of four points :—(1) The removal of the cause ; (2) Repose of the body ; (3) Bland nourishment ; (4) Medicine, if required.

(1) After what has been said concerning the cause, it is only necessary to add that if there be offending material, such as undigested food, etc., still retained in the bowel and acting as an irritant, it must be got rid of. To this end, mild laxatives are employed, as a tablespoonful of castor oil, with laudanum (from 1 or 2 to 15 or 20 drops, according to the age of the patient and the urgency of the distress), or citrate of magnesia.

(2) Just as fatigue has a large influence in causing diarrhœa, so over-exertion is baneful in keeping it up. Fortunately, the greatest number of the cases of summer diarrhœa in adults are of a simple character and cease upon the removal or avoidance of the cause, which is, as a rule, not difficult to discover. It is very important that those prone to affections of the digestive organs should learn to recognize the special exciting causes in their own cases and so avoid them. If it be cold, or the abruptness of temperature changes, a light flannel bandage under the merino underwear of summer should be used and exposure to draughts of air carefully shunned, especially when fatigue exerts its depressing influences ; if it be the change of water, a dash of ginger may avert trouble ; if the danger lurk in certain craved-for dishes, fortitude may take a lesson from not unforgotten pangs ; if in foulness and stenches, refuge must be taken in flight to purer haunts.

(3) Bland, easily-digested food that leaves little solid residue should alone be allowed during an attack. It should be administered in small quantities, cold or tepid, but never hot. Starchy food in milk, or in weak mutton and chicken broth, and beef-tea and simple drinks are useful. In chronic diarrhœa of a severe type, the doctor should supply a dietary suitable to the case.

(4) It is only necessary to supplement what has been said under the first point, by reminding the reader that diarrhœa being sometimes Nature's mode of discharging indigestible food or otherwise obnoxious matter, too great haste must not be shown to check it. For this reason it is often wise to assist Nature by administering some simple aperient, keeping a close watch on the effects.

DIARRHŒA, HOMŒOPATHIC TREATMENT OF

For this disorder, when accompanied by great pain in the stomach and bowels, watery stools, and exhaustion, arsenicum is required ; when caused by drinking cold water when heated, Bryonia ; for griping pains and indications of dysentery, mercurius ; when caused by indigestion and indulgence in rich food and pastry, pulsatilla. For diarrhœa in children, camomilla is a useful remedy. *Dose.*—One drop of the tincture in one tablespoonful of water to be given after each evacuation as it occurs.

DIET AFTER DELIVERY

For the first two days after confinement the diet should be for the most part fluid, and may consist of a basin of bread and milk for breakfast, or a cup of tea or coffee, with toast ; a basin of good beef-tea, with breadcrumb or toast, may be taken for dinner. Tea may be again taken in the afternoon, along with bread or toast, as may be preferred; and for supper the patient may take a basin of arrowroot and milk. A lightly boiled egg is a very nourishing article of diet and will rarely be productive of harm, however soon after confinement it may be given. It must on no account be boiled hard, as it then becomes much less digestible. It is preferably taken at breakfast-time. This diet may be slightly varied; thus, instead of giving exactly the same on the second day as on the first, some sago and milk, or rice and milk, may be given, along with the beef-tea for dinner. On the third day a piece of chicken may be given at dinner-time, or a piece of white fish, such as sole or haddock. On the fourth day, provided everything has been going on well, the patient may be allowed a mutton-chop, or piece of steak, or roast beef, of which, however, she must not partake too freely. After this date she may return to her ordinary diet, care being taken at the same time to avoid everything of an indigestible nature, such as pastry-stuffs, salted meat, pork, veal, etc.; only those articles being taken which she knows to be nourishing and easy of digestion. Owing to the absence of active exercise at this period, the stomach is unable to digest heavy meals of solid food; hence the necessity there is of keeping the diet plain and light, while, at the same time, of a kind sufficiently nourishing. Light puddings may be given; they are wholesome and easy of digestion.

DIETARY, BANTING'S

See BANTING'S DIETARY.

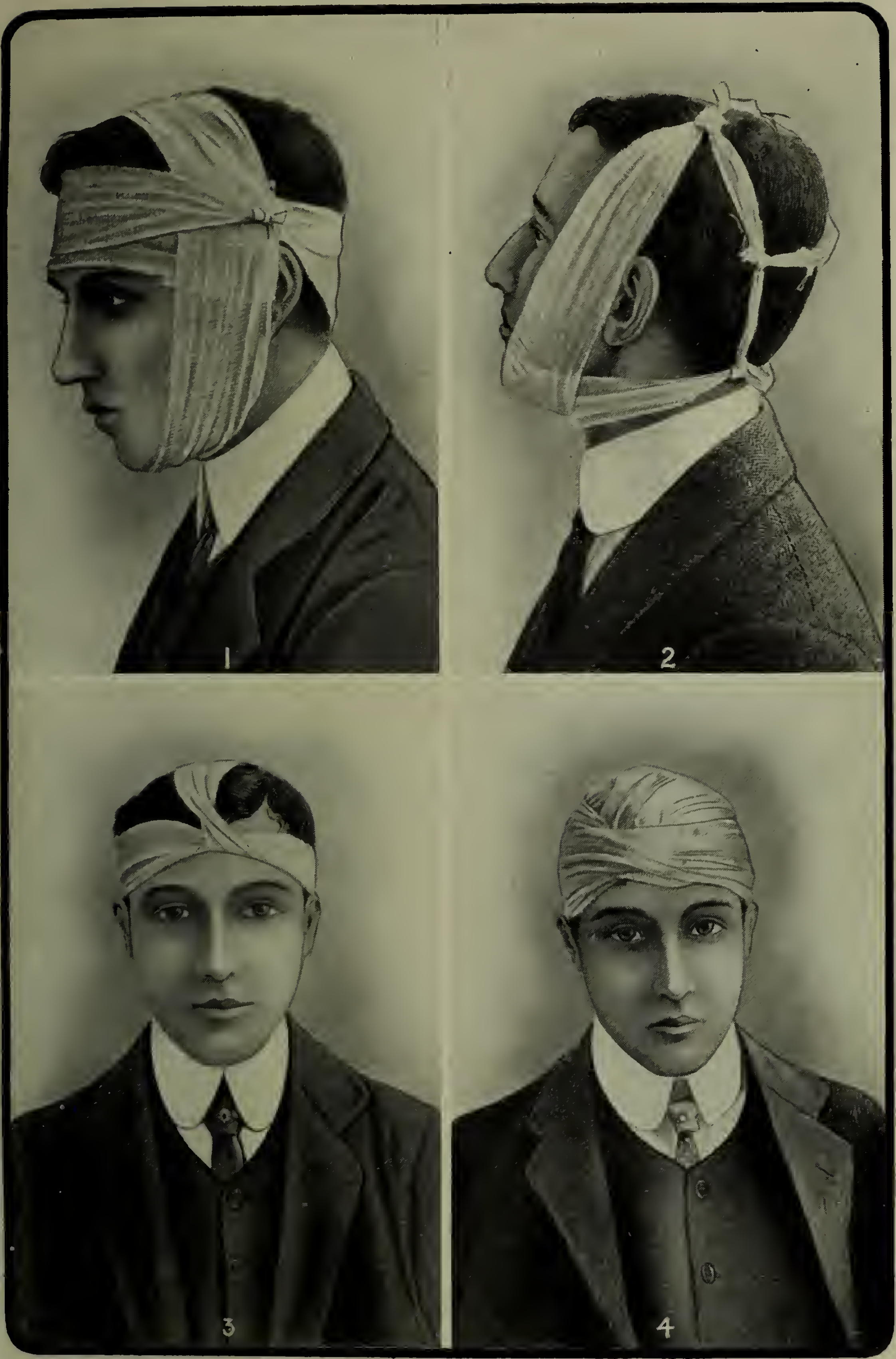
DIGESTIBILITY OF FOODS

Much of our exact knowledge respecting the digestibility of various aliments is derived from observations upon a Canadian named Alexis St. Martin, who had a hole shot through his side into his stomach, which healed at the edges without closing up entirely so that the process of digestion could be watched in all its stages without difficulty. St. Martin was taken into the service of Dr. Beaumont, who made many observations on the interior of the stomach and on the effects of food introduced through the opening. Other cases of a similar kind have afforded opportunities for more recent experiments; so, in addition to the tables derived from Dr. Beaumont's experiments, we have added one from Dr. Chambers.

RELATIVE DIGESTIBILITY OF ANIMAL SUBSTANCES

Articles of Diet.	How Cooked.	Time of Chymification.	
		H.	M.
Pigs' Feet (soused)	Boiled	1	0
Tripe (soused)	Boiled	1	0
Eggs (whipped)	Raw	1	30
Salmon Trout	Boiled	1	30
Venison Steak	Broiled	1	30
Brains	Boiled	1	45
Ox Liver	Broiled	2	0
Cod fish (cured dry)	Boiled	2	0
Eggs	Roasted	2	15
Turkey	Boiled	2	25
Gelatine	Boiled	2	30
Goose	Roasted	2	30
Pig (Suckling)	Roasted	2	30
Lamb	Broiled	2	30
Chicken	Fricasseed	2	45
Beef	Boiled	2	45
Beef	Roasted	3	0
Mutton	Boiled	3	0
Mutton	Roasted	3	15
Oysters	Stewed	3	30
Cheese	Raw	3	30
Eggs	HardBoiled	3	30
Eggs	Fried	3	30
Beef	Fried	4	0
Fowls	Boiled	4	0
Fowls	Roasted	4	0
Ducks	Roasted	4	0
Cartilage	Boiled	4	15
Pork	Roasted	5	15
Tendon	Boiled	5	30

BANDAGING. No. III.



1. Bandage for pressure in region of the temple. 2. Application of Four-tailed Bandage for fracture of the lower jaw. 3. To commence a Capeline Bandage. 4. Capeline Bandage complete.

RELATIVE DIGESTIBILITY OF VEGETABLE SUBSTANCES

Articles of Diet.	How Cooked.	Time of Chymification.	
		H.	M.
Rice	Boiled .	1	0
Apples (sweet and mellow)	Raw .	1	30
Sago	Boiled .	1	45
Tapioca	Boiled .	2	0
Barley	Boiled .	2	0
Apples (sour and mellow)	Raw .	2	0
Cabbage (with vinegar)	Raw .	2	0
Beans	Boiled .	2	30
Sponge Cake - . . .	Baked .	2	30
Parsnips	Boiled .	2	30
Potatoes	Roasted	2	30
Potatoes	Baked .	2	33
Apple Dumpling . .	Boiled .	3	0
Indian Corn Cake . .	Baked .	3	0
Indian Corn Bread . .	Baked .	3	15
Carrots	Boiled .	3	15
Wheaten Bread . . .	Baked .	3	30
Potatoes	Boiled .	3	30
Turnips	Boiled .	3	30
Beets	Boiled .	3	45
Cabbage	Boiled .	4	0

DIGESTIBILITY, PRECEDENCE OF FOODS IN

The following list of foods in order of precedence, according to digestibility has been drawn up by Dr. Chambers :—

Sweetbread and lamb's trotters.
Boiled chicken.
Venison.
Lightly boiled eggs, new toasted cheese.
Roasted fowl, turkey, partridge, pheasant.
Lamb, wild duck.
Oysters, periwinkle.
Omelette (?), tripe (?).
Boiled sole, haddock, skate, trout, perch.
Mutton.
Roast beef.
Boiled beef.
Rump steak.
Roast veal.
Boiled veal, rabbit.
Salmon, mackerel, herring, pilchard, sprat.
Hard boiled and fried eggs.
Wood pigeon, hare.
Tame pigeon, tame duck, goose.
Fried fish.
Roast and boiled pork.
Heart, liver, lights, milt, and kidneys of ox, swine, and sheep.
Lobsters, shrimps, prawns.
Caviare.
Smoked, dried, salted, and pickled fish.
Crab.
Ripe old cheese.

DIGESTION, HOW ACCOMPLISHED

To make the process of digestion simple, let us say that it begins in the stomach and ends in the lungs. Let us suppose a man to swallow a mouthful of bread. We follow it from his mouth, down through the œsophagus to his stomach. It now, by a peculiar motion of the muscles of the stomach, is moved about in the stomach, and as it touches here and there, gastric juice starts out, like sweat upon the forehead, and wets the bread. After a couple of hours of revolving about within the stomach, the bread is changed into something which looks like butter-milk. This is chyme. Now the gate at the right end of the stomach opens and lets this chyme pass through into the first part of the intestine. Then two new liquids are poured in one from the liver—the bile ; the other from the pancreas—the pancreatic juice. These induce certain changes in the liquid bread which make it resemble milk. Now it is known as chyle. Innumerable little mouths, which open within the intestine, suck up this milk or chyle, carry it to a small canal—the thoracic duct—which lies upon the backbone, and through this canal it runs up to the upper part of the chest and is poured into a large vein just under the left collar-bone. Through this vein it reaches the right side of the heart and is then forced into the lungs, where it comes in contact with the air. Now a wonderful change comes over it. This is produced by the addition of oxygen to the milk-like fluid. For a given quantity of this chyle a still larger quantity of oxygen is added, and the compound which comes of this union between the bread and the oxygen is the nutriment which supplies the wants of the system. What takes place in the lungs is more important than anything that precedes it in the process of digestion.

DIGESTION, PREPARATIONS FOR

The mouth has been defined as an irregular cavity which contains the organs of taste and mastication. While the food is in the mouth, we have direct control over it ; but as soon as the food leaves the mouth, it passes beyond our control. It is of no use to say to a man after dinner, "Digest your food well" ; for he has no direct control over anything in the alimentary canal below his throat. But, while the food is in the mouth it is entirely under his control, and he may contribute more than most people imagine to the completeness of the great digestive function. Now, it happens that the human stomach cannot digest starch and yet a large percentage of our food consists of starch. We all know how much starch there is in the potato, in bread and in various other articles of food. If, for example, a potato could be introduced into the stomach without passing through the mouth, the stomach would find it most unmanageable. But if it can only remain a few moments in the mouth and with the assistance of the teeth be ground into a paste and thoroughly saturated with the saliva the starch, of which it so largely consists, will undergo, through the agency of the saliva, a change which will make the subsequent steps in the digestive process easy. That change, it will surprise some people, who have not studied it, to learn, is one from starch to sugar. The saliva contains a remarkable ingredient known as ptyaline. The ptyaline comprises one-200th part of the saliva. This extraordinary agent has the magical power of changing the starch of the food into sugar, and thus the potato is completely prepared for the subsequent steps in digestion. Whoever has taken a mass of wheat into the mouth has experienced a very pleasing illustration of this change of starch into sugar. When the wheat is first crushed in the mouth, it is sticky, and has the starch taste, but almost instantly it becomes sweet. In this brief moment the saliva has changed the starch into sugar.

DIGESTION, TRUE THEORY OF

Digestion is a vital process to which chemical and mechanical forces contribute. While the motion of the walls of the stomach is necessary to mingle its contents, and while the chemical solvency of the gastric juice is indispensable, both of these combined cannot produce the true chyme. That chyme, into which every kind of food is transformed, can be produced nowhere outside of the stomach. In this respect chyme is like other products of the body. We may learn all the constituents of the saliva or the bile ; we can produce neither of them outside of the body. That mysterious force which we call vital is the force which determines all. Chemistry and mechanics play their part, but the all-determining, guiding and controlling power is the life principle.

DIGESTIVE ORGANS

These are the mouth, teeth, salivary glands, pharynx, œsophagus, stomach, intestines, liver, pancreas, spleen, lacteals, and thoracic duct. For a description of organs in detail, *see* under the name of each.

DILL WATER

See MEDICINES, HOME.

DIPHTHERIA

(Greek, **diphthera,** "piece of skin or leather").

Diphtheria is considered to be a poisoning of the blood, and is generally due to bad drainage either of the houses or the neighbourhood. It is accompanied with the formation of membrane on the mucous surfaces. Diphtheria seems to have been known for over two thousand years, and under various names it has prevailed with great severity in different countries. It has often been confounded with croup and scarlet fever, and it was not until a comparatively recent period that this disease has been fully and generally recognized. Children and young people are more exposed to it than adults and more girls suffer from it than boys ; in like manner women are more liable to it than men, and the weakly of either sex are more prone to the disease than the strong and healthy. Climate and season do not seem to exercise any influence on this disorder ; it occurs with equal severity in the winter as in the summer months, and in its symptoms and mortality it is the same in hot as in cold countries ; yet various epidemics differ in severity and in extent. The French call this disease *diphtérie*, and in 1859 the name diphtheria was first applied to it in the returns of the Registrar-General of the United Kingdom and has now become a well-known and established term. It is quite clear that this complaint is contagious, but in what way is not so manifest. The infectious matter is capable of diffusion in the air and conveyance to distant parts, but it is more common for people who inhale the patient's breath, or who come in close contact with the sufferer, to suffer most. No atmospheric condition is known which tends to favour the spread or check the progress of the disease ; it is very doubtful if the disease can be taken from one house to another by an unaffected person, but the presence of one sick person in a house is sufficient for its communication to another, although the two may be kept wholly separate. As in most epidemics, the mortality is greatest at the outset, and this is probably due to the most weakly and most susceptible being attacked first. Although every care be taken to cleanse and purify an apartment, yet the infection will sometimes cling to it with remarkable tenacity. In a country house in Scotland a visitor suffered from this disease while occupying a chamber in which a case of diphtheria had occurred eleven months before. The time between exposure to the disease and the first appearance of the disorder varies very much ; in some cases the period has been only thirty hours, in others several days elapse. Two children were taken from an infected house and removed to a village where no similar case had appeared ; one child had symptoms of the disease on the third day, being apparently quite well in the interval, and another person going from that village to nurse her sister in the infected house fell ill four days afterwards. In another house a servant was taken ill with this disease, and remained there a month until she was quite well ; the house was then well cleansed and ventilated and remained empty for ten days. At the end of that time the family returned and three weeks afterwards the baby was attacked and then the other inmates in turn. The infection may be disseminated for some time after convalescence has been established. There seems to be a predisposition on the part of some people to take this disease more readily than others. Those who are highly nervous or have undergone much mental activity, and those who have suffered from exhaustion or bodily fatigue, are more liable than others. The disease seems to attack indifferently all classes of society.

DIPHTHERIA, SYMPTOMS OF

The disease begins, like so many others, with a feeling of general depression and feverishness ; there is what seems like a cold in the head, a hoarseness, slight difficulty of swallowing, stiffness of the neck, and swelling of the glands about the throat ; when this swelling occurs, send for the doctor, without waiting for other symptoms than those given. White patches on the tonsils and back part of the throat will follow if diphtheria is really present.

DIPHTHERIA, TREATMENT OF

On suspicion of the disease, isolate the patient and keep him in bed. Allow no one to come into the room except one attendant. Keep the thermometer at 65° to 70°F. If possible, light a fire, put the window down at the top two inches or more and keep it so day and night. Send for chlorate of potash and dissolve as much as you can in a tumbler of tepid water, to be freely used as a gargle. Have some strong beef-tea prepared at once and, until it is ready, give the patient as much milk with the white of an egg in it as he will drink, in the proportion of one egg to half a pint. These precautions will probably save the patient from more severe sore-throat if his trouble is not really diphtheria ; and should this alarming disease have overtaken him, you will have done all that you can without further instructions. "From the moment," says an American authority, "that you receive the doctor's orders in case of diphtheria, carry them out as if life depended on you alone. Never relax your efforts to give medicine, food and stimulants, no matter how hopeless the attempt seems to you, and do not be betrayed into carelessness by what you think an abatement of the symptoms." Use every precaution against the spread of the contagion. Discharges from the mouth will probably be excessive ; clear them away as quickly as possible, using only soft rags, which should be destroyed in the fire. Wash the lips and chin, which are touched by the discharge with the chlorate of potash now and then. Keep them covered with vaseline or a little oil ; examine the skin everywhere, and if broken or chafed, treat it in the same way. The membrane is liable to form wherever the skin is broken. Throw all soiled rags directly into the fire, if there is one in the patient's room ; if there is none, put them in a covered jar or pail in which there is an ounce of chloride of lime and a gallon of water ; let them soak until they can be carried away in the jar and burned in the open air. The treatment of diphtheria consists in general means and local measures. There is no drug which can be looked upon as a specific, nor are there any means in our power to eliminate the disease when once it has attacked an individual, yet a great deal may be done at the onset if the disease is recognized sufficiently early. As a local remedy, a solution of nitrate of silver should be thoroughly applied to the diseased surface of the throat, but not forcibly so as to rub off the membrane and cause bleeding to follow. Hydrochloric acid and honey have been used for a similar purpose. But if no drug has been discovered that acts as a specific, the injection of antitoxin places in the doctor's hands a most powerful remedy. It consists of the serum or fluid part of the blood of an animal affected with diphtheria and operates by counteracting the poison engendered in the blood by the disease. The injection is usually made in the fleshy part of the arm or thigh, and may have to be repeated. The antitoxin should only be administered by the doctor. Sometimes immediate improvement follows its use. In the hands of some practitioners antitoxin has proved so efficacious that they have gone so far as to say that no case of diphtheria should be lost, provided the serum be employed in time. Though this is too optimistic an opinion, there is no doubt but that the use of the antitoxin has reduced the case-mortality to a wonderful degree. By way of nourishment give only concentrated food : beef-essence ; custard, made thin enough to drink ; one egg to half a tumbler of milk beaten up and uncooked ; coffee, with plenty of milk, etc. Nourishing enemata will be ordered if necessary. Give the food once an hour and oftener if the strength is failing. The doctor will direct this ; ask him about it. If brandy is ordered, give it in milk ; that is so much more nourishment supplied. Wine whey can be freely taken if stimulants are allowed and, given cold, it is very refreshing. If the atomiser is to be used for throwing spray into the mouth and nose, hold it at a distance if the patient is a child, until he becomes a little accustomed to it. The child can inhale vapour, when asleep even, through a large funnel held near the face, the small end being fitted over the spout of a kettle in which the steam is generated.

DIPHTHERIA, TREATMENT OF, IN CONVALESCENCE

In convalescence the care is not to be relaxed ; the patient is not to leave his bed for any purpose, or even to sit up in it till the doctor has given permission. Paralysis of the heart may result from want of care in this matter. Sudden deaths in convalescence from diphtheria are not uncommon. The food may be gradually changed as the patient improves. When meat is allowed, cut it small ; the throat and the power to swallow are affected for a long time afterwards—in some cases by partial paralysis. The nurse must protect herself by not inhaling the patient's breath, or running risks from the sudden coughing-up of mucus or membrane ; she must have nourishing food and sufficient rest. After recovery, disinfect and clear the room thoroughly. The patient must be isolated for at least three weeks after recovery and persons exposed to infection must undergo quarantine for a fortnight.

DISEASE, EARLY STAGES OF

The early stages of any disease are not under the observation of a physician, and yet are of great importance. A loss of appetite, a feeling of general lassitude, flushing of the face, and wandering pains in the back and limbs, sore throat, sleeplessness ; in short, anything unusual in the appearance or feeling should excite attention. Neglect of these seeming trifles may make the difference between an unimportant indisposition and a serious illness. Therefore, on the first appearance of such symptoms, it is well to enforce rest, a long morning sleep, followed by a tepid sponge-bath, and some light nourishment before dressing for the day. The simplest food should be eaten and not much of that. No exercise should be taken, but as much fresh air as possible, by night and by day, should be secured, and in all cases the patient should occupy a bed alone. It will generally be perfectly safe to give two grains of quinine in twelve hours. The bowels should be regulated, if constipated, by a simple enema of warm soap-suds. After a day or two of such treatment, should there be no improvement, send for the doctor ; you have probably done all that he would have ordered so far.

DISEASE, PREDISPOSITION TO

The following opinion on predisposition to disease has been made by a well-known medical authority :—"What," asks this writer, "are predisposing causes of disease ?" In answer to this we may remark that some persons are more liable to be affected by the operation of many of these ascertained causes, exciting causes, than others are ; and the same persons are more liable to be influenced at one time than another. And special circumstances, existing in particular cases, will be found to account for this variable operation of known exciting causes on the bodily health. These special circumstances may properly be called predisposing causes. Thus, of twenty persons exposed to the same noxious influence—to the combined agency of wet and cold during shipwreck, for example—one shall have catarrh, another rheumatism, a third pleurisy, a fourth ophthalmia, a fifth inflammation of the bowels and fifteen shall escape without any illness at all. A man does that with impunity to-day which shall put his life in jeopardy when he repeats it next week. It is not, therefore, the exciting causes alone that in all cases determine the disease. Something—nay much, or all—will frequently depend on the condition of the body at the time when the exciting cause is applied ; and this condition of the body, which we call predisposition, will depend on circumstances then or previously in operation ; and these circumstances are, in our language, predisposing causes. We must take care not to confound, as many apparently do, the predisposition with the circumstance creating it. The predisposition is a certain state of the body—the predisposing cause is what produces that state. The cause of the predisposition is the predisposing cause of the disease. A predisposing cause may, therefore, be defined to be anything whatever, which has had such a previous influence on the body as to have rendered it universally susceptible to the exciting cause of the particular disease. It is sometimes difficult or impossible to say of a given cause whether it ought to be ranked among the exciting or among the predisposing causes ; whether it has prepared the system for being affected by some other agent, or whether it has itself produced the disease ; but, for the most part, the distinction is real and sufficiently well marked and of great importance to be attended to. Disease may sometimes be averted, even in spite of strong and fixed predisposition to it, if we know and can guard against the agencies by which it is capable of being excited. On the other hand, disease may often be warded off, notwithstanding the presence and application of its exciting cause, when its predisposing causes are ascertained, and can be prevented. In proportion as the body is weakened or exhausted, it yields more readily to the pernicious influence of contagion or of malaria, but by obviating all causes of debility and fortifying the system we walk with comparative security amid surrounding pestilence."

DISEASE, SIGNS OF, IN CHILDREN

To be able to distinguish disease in a child from some mere transient ailment forms a most important part of the work of those who have the care and upbringing of children. To be sending for the physician when there is nothing the matter with the child and to refrain from so doing when the child is seriously ill, are mistakes of daily occurrence. Better far, however, that the former should take place than that a grave disease should be neglected and the patient suffer in consequence. There are, fortunately, marks by which the observant mind may be able to distinguish between the one and the other ; but when there is any doubt existing in the mind, we should urge the necessity of calling in the aid of the physician. By so doing all unnecessary delay is avoided and, if the disease is serious, it will be all the better for the patient that it has been taken in time. When any serious illness is impending in a child, he is generally noticed to be out of sorts for some time ; he is observed to be restless and irritable ; his sleep becomes disturbed ; he may awake with a scream ; occasional muscular twitchings may also be observed. The child becomes dull and listless ; he has no inclination to join with his brothers and sisters in their sports ; he will remain motionless for a long time, only following them in their amusements with his eyes ; his features are those of an aged person. The appetite also becomes capricious, or may be altogether lost. When these symptoms are observed coming gradually upon a child, no time should be lost in seeking advice, as in all probability something of a serious nature is impending. Besides the foregoing symptoms, there are others which shall be noticed more in detail hereafter, the presence of which gives valuable information, not only as to the fact of impending serious disease, but also with regard to the part of the body affected. Now the importance of information of this kind in the case of children who are able to express their feelings to those round about them only very imperfectly, if at all, must be apparent to everyone. The expression of countenance, the voice, the movements, are all carefully studied by the physician and employed by him in diagnosing the diseases of infancy and childhood, and to the unskilled a knowledge of some of these under the modifying influence of disease may prove useful. We shall consider those signs of disease which may be derived from—

1. *The Condition of the Body.*—If a child that has been plump and well begins to lose flesh, and is

noticed day by day to become more wasted, in all probability there is something serious threatening the child. The production of emaciation is associated in the popular mind with various affections ; thus worms, teething, diarrhœa, and growth are all supposed to give rise to emaciation. With regard to the first, although undoubtedly a cause of emaciation sometimes when present in large numbers, they certainly do not give rise to it with anything like the frequency with which they are credited. Should worms, however, be observed in the motions, means should be employed to get rid of them as soon as possible. Another frequently supposed cause of emaciation in children is dentition, but this can only be attributed as a cause when its existence is evident and when, instead of going on naturally, it is accomplished irregularly and in a tumultuous manner. Brain diseases, as is well known to physicians, generally manifest themselves by emaciation : and unless this fact is borne in mind, the coming on of a serious disease may be overlooked and much valuable time be lost in consequence. Another cause of emaciation is jealousy on the part of a child. Anything that might lead to this developing itself in one member of a family towards another should be carefully guarded against by those who are entrusted with their upbringing.

2. *Altered Demeanour.*—When a child that was bright and happy is observed to become listless and morose, careless in regard to everything that formerly gave it happiness, unwilling to join its brothers and sisters in their play, and sitting silently watching them in a half-interested sort of way, depend upon it there is something seriously wrong. A child when in health is bright and active, seldom at rest for any length of time unless when asleep, and when this natural activity, which is a sure sign of health, ceases, the cause should be at once inquired into, and should the mother be unable to give herself a satisfactory explanation, no time should be wasted in sending for advice. It has been remarked that a child indisposed is a grumbling child ; that one suffering from disease is dejected. There is much truth in this and indeed it has deep root in popular observation ; for it is always looked upon as a favourable sign when a child that has been passing through a serious illness begins to grumble and be dissatisfied with its surroundings. The child that is really ill is dull and morose ; he is seldom heard grumbling, cross and finding fault with everything ; he takes little notice of what is going on around and has an aged and almost ludicrously serious expression of countenance.

3. *The Cry.*—From the cry of a child much valuable information may be derived. By observation, both parent and physician are able to distinguish between the cry of hunger and that of pain. The cry of a child in pain is peculiarly sharp and sudden, while that of a hungry child is generally preceded by a series of grunts, and accompanied by the turning of the head from side to side and by certain movements of the mouth as if searching for the breast.

4. *Pain.*—When a child is suffering from pain in any part of the body, the pain is accompanied by certain external manifestations which not only render its existence apparent, but which point to the locality from which it arises ; thus pain in the abdomen causes a child alternately to draw up its legs and straighten

them again, the fists meanwhile remaining clenched. The features become more or less contracted and the child cries while the pain lasts; so that if the pain is spasmodic in its nature, there will be periods of crying followed by intervals of complete rest. When the child is suffering from inflammation of the lungs, it cries at the time of coughing and for some little time afterwards. When the child is suffering from pleurisy, every effort at coughing gives rise to pain. When a child is suffering from brain disease, the cry is very significant—it takes the character of a sudden shriek. In general uneasiness the cry is of an irritable nature and ceases when soothing treatment has been used. When the nurse is convinced that the child is suffering pain, she should try to ascertain in which of the three great cavities of the body the pain is located—the abdomen, chest, or head. Pain in the bowels is accompanied by wriggling of the body, drawing up of the legs, clenching of the fists and generally occurs before or after a movement. In inflammation of the lungs or air-passages, the cry is at the time of coughing and for a little time afterwards. In pleurisy the child experiences sharp pain on coughing, or on any movement of the body. With pain in the head, which comes from disease of the brain, the child gives a single sudden shriek. Little children often suffer very severe pain from earache, will cry loud and long and cannot be comforted. There is also the irritable cry of general uneasiness, which may generally be quieted by soothing treatment.

5. *Expression of the Face.*—The expression of the face varies somewhat in different diseases. In diseases of the stomach and bowels there is apt to be paleness and contraction about the mouth; the nostrils often dilate with each inspiration in diseases of the chest; in diseases of the brain the eyes and upper part of the face are more apt to be affected; but in severe pain in any locality the whole face is likely to express it by contortions.

6. *Posture and Movements.*—The positions which the child seems naturally to take should be noticed, whether it lies on the side or on the back, whether it seems to prefer to have the head elevated, whether it keeps the head quietly in one position, or turns it restlessly from side to side, or is inclined to burrow in the pillow. The hand is frequently carried to the head in headache or earache, and to the mouth when the teeth are giving pain.

7. *Skin.*—The temperature and colour of the skin, its dryness or moisture, its smoothness, or the presence of any roughness or swelling, are points which may indicate health or disease.

8. *Appearance of Face.*—The appearance of the face is often expressive of the diseases of childhood, and different parts of the face are affected according to the seat of the disease. Thus, if the brain is the seat of the disease, the forehead and eyes are noticed to be principally affected; the former is contracted, the eyebrows are knit, and light cannot be borne by the eyes. In diseases affecting the chest, the parts of the face chiefly altered are the nose and cheeks; the nostrils are seen to dilate with each inspiration and the cheeks are flushed. When the stomach and bowels are affected, there is a peculiar pallor and contraction about the mouth.

9. *Feverishness.*—There are symptoms which manifest themselves in children from time to time, the signi-

fication of which may be very grave and indicative of serious disease, or which may be trivial and passing in its nature and of no importance. Thus, a child may suddenly become feverish, the temperature may be raised, the pulse quickened, the skin become hot and burning, and the face flushed, and yet, after the lapse of a few hours, the child may be perfectly well. Some children are much more liable to such attacks than others and they frequently are the cause of much unnecessary alarm. If the child has been in its usual health up to this time, if it has not been restless, irritable, listless, or morose, if its appetite has remained good and its sleep been undisturbed, the fever will generally pass away in a few hours. If, however, it should persist, treatment had better be adopted without further delay, as fever of a serious nature may be impending. Many children suffer from this kind of feverishness from fright, from errors in diet and from other like causes. In all cases in which the feverishness is of longer duration than a few hours, medical assistance should be sought, as one of the eruptive or continued fevers may be impending. Should there be along with the feverishness the symptoms of an ordinary cold in the head, such as running at the nose and eyes, sneezing, dry, hacking cough, hoarseness, great heat of the skin, probably an attack of measles is impending. If there be chilliness and lassitude, with pain in the head and soreness of the throat preceding the fever, and a pulse that is very frequent, there is cause to dread the approach of scarlet fever. If there is shivering, high fever, headache, vomiting and especially severe muscular pains referred to the back, and if there is the absence of throat and head symptoms characteristic of scarlet fever and measles respectively, there is strong reason to suspect small-pox. Additional assistance may be obtained in forming a correct opinion with regard to any case by ascertaining whether or not there are cases of small-pox in the neighbourhood. When there is little or no constitutional disturbance, with a rash beginning on the shoulders and back and consisting of rose-coloured pimples which become converted into transparent vesicles, the disease is chicken-pox. It is well, whenever any one of these diseases is suspected, to call in the aid of the physician, because, although the attack may be mild, the after-consequences are often serious, and if neglected may lead to permanent mischief or to a fatal result. Thus, after measles, inflammation of the lungs, bronchitis, or croup may supervene, unless sufficient care has been exercised after the departure of the fever to guard against cold. Also after scarlet fever, kidney affections are apt to arise unless care is taken to prevent exposure. The fact of such complications being liable to occur in the mildest cases should prevent them from being treated lightly, and in regard to these, as well as the graver forms, the utmost caution is necessary till all risk is over. There are other fevers, called continued fevers, such as typhoid, which are ushered in by long-continued disorders of the digestive and nervous systems which cannot fail to attract attention: and when observed, early assistance should be obtained, as long and careful management is necessary in such cases.

10. *Cough.*—This, in children, may be a symptom of serious or trivial import according to the cause from which it has arisen : thus, it

may proceed from worms, dentition, bronchitis, pneumonia, or may arise in connexion with ordinary catarrh ; but, whatever the cause, it ought not to be looked on slightly, nor be allowed to go on unchecked.

11. *Vomiting and Diarrhœa.*—There are several other affections, such as vomiting and diarrhœa, which may be significant only of disorders of the digestive system, or which may be more serious in their nature. Thus, vomiting is frequent at the beginning of many diseases ; and unless there has been anything at fault in the way of errors in diet to account for it, it should not be treated lightly. Generally a parent will be able to distinguish between the simple and that which is of more serious import. Should the vomiting, however caused, be persistent, it must on no account be allowed to go on unchecked. Diarrhœa, especially in children who are teething, is frequently neglected till very considerable emaciation has occurred. This cannot be too strongly condemned, as the mortality from this cause in children is very great. If the diarrhœa does not yield in a day or two to careful dieting, no further delay should occur in sending for medical assistance. Should the case then be judged one merely of indisposition, the means to be adopted are rest, regulation of temperature, and careful dieting.

DISINFECTANT

A disinfectant is an agent that attacks poisonous, miasmatic, or putrescent matters, and either by uniting with them, or breaking up their constituent elements, transforms them into innocuous products.

DISINFECTANTS, ARTIFICIAL

The principal chemical disinfectants which can be used in fluid form in large quantities are carbolic acid and solutions of corrosive sublimate or perchloride of mercury, the requisite strength of the former being one part in twenty of water and that of the latter one part in one thousand. Carbolic acid is commonly used in far too dilute a form to have much real value as a disinfectant, for in order to destroy germ life it is necessary to use at least five per cent. solutions in water, and the action must be prolonged. When we speak of a disinfectant of a certain strength as being an efficient germicide we must bear in mind that this solution must come in contact with the germs to be destroyed without being further diluted. Of all chemical disinfectants solutions of corrosive sublimate are probably the most efficient and the cheapest, one ounce of corrosive sublimate being sufficient to make over sixty gallons of really powerful disinfecting solution.

It is, however, most important to remember that none of these agents, valuable as they are, can take the place of ventilation and free currents of air. In a sick-room a small fire should be kept up, and the door or window opened for a few minutes three or four times a day, but not so as to place the patient in a draught. It is important to have the air thoroughly renewed. Charcoal should be placed about the room, or some carbolic acid should be sprinkled about. Disinfectants are not only of much service in purifying the air in the above-mentioned cases, but they are equally valuable in destroying the noxious emanations from sewage ; for this purpose numerous measures have been suggested. Charcoal may be employed, but it is not so useful here as in purifying the air. It must never be forgotten that there is a cardinal difference between a disinfectant and a deodorant—where it is only a question of an unpleasant smell and nothing more, a deodorizer will suffice ; but in all cases where noxious germs are present, or are likely to be present, the use of a disinfectant is imperative. Dry earth is used in earth-closets and has been found very valuable in large institutions and camps ; the excreta are at once covered over and no effluvium escapes ; in this way diarrhœa and typhoid fever have been prevented. Quicklime and water may be added to the sewage until a deposit occurs. The lime forms insoluble salts and decomposes the sulphuretted hydrogen ; it delays, but does not prevent, the decomposition of animal and vegetable matters. Perchloride of iron is also useful : it decomposes sulphuretted hydrogen and carbonate of ammonia, which is so often met with in sewage. A solution of chloride of zinc (half a pound to a gallon of water) may be used ; it will destroy ammoniacal compounds and organic matter ; it delays decomposition for some time. Permanganate of potash must be used in very large quantities to have much effect on sewage ; it is useful in deodorizing excreta and may be poured on the stools of patients suffering from cholera or typhoid fever. The preparations from coal tar, as creasote, carbolic acid, and cresylic acid, are very valuable agents in purifying sewage ; they may be obtained as powders or crystals, or liquids ; the latter are the most useful, as they mix readily with sewage. It does not follow, as we have said, that because air smells badly it is therefore dangerous ; gas-works or tan-works may be disagreeable, but they are not injurious ; again, a cesspool or drain may not smell much, but the exhalations may be most dangerous. A noxious smell is like a Davy lamp to a miner, a warning of danger, but it is not itself the danger. By keeping in mind the evils arising from impure air, close rooms, noxious emanations, and sewage contaminations, and by using every means to procure ventilation and to remove the impurities by chemical means, a vast deal of good must result and many diseases may be prevented.

DISINFECTANTS, NATURAL

The atmosphere is a great disinfectant, partially by its removal of contaminating matter and partially by its power of oxidation. Water is the next great disinfectant employed by nature. As putrefaction, however, will not take place in the absence of moisture, water may also be regarded as one of the greatest promoters of corruption. Water acts as a disinfectant by the simple act of washing. Every shower of rain, every river and stream, removes from the land a certain quantity of substance susceptible of decomposition. The ocean bears the decaying matter farther from the land, mingles it with pure water, dashes it about in the air, and thus produces oxidation and purification. Soil or fresh earth is another great disinfectant and, in conjunction with air and water, one of the most efficient of all known agencies. Organic and putrid substances sinking into its porosities in solution and mixed with air become of necessity oxidized. Water impregnated with every impurity in sinking through the earth is filtered and is only deleterious where the abundance of animal matter is more than can be acted upon by the soil. With the great deodorizing power of common earth, every one is familiar. "In fact," to quote Dr. Letheby, "the graveyards of every city testify to the enormous quantities of organic matter that can be disposed of through its agency; and no one who has witnessed the rapid deodorizing power of clay, when sewage or night-soil is distributed upon the land, can doubt its efficacy. The Chinese have long taken advantage of this power, for they mix night soil with one third of its weight of fat marl and knead it into cakes, which are common articles of commerce. In practice, also, it has been found that a ton of clay will completely deodorize about three tons of the solid matter of sewage." Light is another natural disinfectant and tends to promote oxidation. Heat and cold are likewise powerful disinfectants—partly natural, partly artificial. As a means of immediate disinfection of contaminated garments, bedding, and even close apartments, ships, etc., heat is at once a cheap and most effectual method. The boiling of infected clothing, etc., is admitted to destroy effectually any contagious poison and practically, upon a large scale, experience proves that it is best to employ steam as a means of heating. It is probable that no circumstance contributes more directly to the perpetuation and spread of typhus fever than the accumulation and bad management of contaminated clothing, etc., that ought, in all circumstances, to be purified (by heat) as soon as it leaves the patient or the bed. Frost or low temperature, when continued for a sufficient length of time, will effectually destroy miasma; but it should be noted that a freezing temperature does not appear to mitigate the personally infectious poisons or contagions (*i.e.*, small-pox, etc.), though, with certain exceptions, it arrests putrefaction and the action of fermentation.

DISINFECTANTS, USEFUL RECIPES FOR

1. For water-closets, vessels, stationary tubs and basins, bathtubs, and any other drain-pipe.

Hot water	2½ gallons.
Copperas	4 pounds.
Carbolic acid	4 ounces.

Mix well together and pour into the foul place.

2. For swill-pails.—When empty, sprinkle with chloride of lime and rinse well in clean water after a few hours.

3. Cesspools, their overflow and privies.—Dry copperas or chloride of lime, by the shovelful.

4. For disinfecting erysipelas bandages, poultice-cloths, etc.

Carbolic acid	2 ounces.
Hot water	1 gallon.

Soak the articles twelve hours, then wash and use only for the same case. Burn them afterwards.

5. For washing bed and body clothing in erysipelas, small-pox and other contagious diseases.

Sulphate of zinc	2½ ounces.
Carbolic acid	1 ounce.
Hot water	1 gallon.

Soak the articles twelve hours, then wash; use only for the same case and burn them afterwards. Hot water is necessary, as carbolic acid is very slightly soluble in cold water unless combined with glycerine.

Disinfectants, to be effective, should be used freely and garments or cloths put to soak should be fully covered with the liquid and occasionally stirred.

DISINFECTION OF ROOMS

Fumigation has been found by experiment to be not nearly so effective as was once supposed. It has been shown that the slightest covering will protect germs from the action of gaseous disinfectants. Sulphurous acid gas generated by burning sulphur is the fumigating reagent most commonly employed. From one to one and a half pounds of sulphur should be allowed for every thousand cubic feet of air in the room to be dealt with. All the openings in the room, such as the fireplace, and the cracks round the window sashes having been sealed by pasting brown paper over them, the necessary quantity of sulphur is placed in a saucepan or other metal vessel, and this again should be placed on two bricks standing in a tray containing water. The sulphur should then be lit, and the person who ignites it must at once leave the room, close the door, and paste brown paper all round. The room should then be left undisturbed for six or eight hours, at the end of which time the windows should be opened and left open for twenty-four hours. The other aerial disinfectant in common use is chlorine gas, generated by adding a quart of strong hydrochloric acid to one pound of chloride of lime contained in an earthenware basin for each thousand cubic feet of space. This gas is very poisonous, and the person who pours on the acid should lose no time in making his escape from the room. Note that the fumes will bleach any coloured article exposed. Disinfection, however, can best be most effectually carried out by the local Sanitary Authority, which is in the habit of effecting it on the most approved lines and indeed is empowered to carry it out compulsorily if need be to prevent infection.

DISLOCATION

Total inability to bend any of the joints, with acute pain upon a forcible attempt made by another person to perform such movement, following immediately upon the occurrence of an accident, is enough to excite strong suspicion of dislocation. A surgeon should, therefore, be sent for without loss of time, that he may have the advantage of performing the operation of reduction before swelling and inflammation of the surrounding parts have taken place, which would both aggravate the pain and render the immediate reduction more difficult, or even impossible. In the great majority of cases of dislocation at a large joint, it is impossible, after an interval of twelve hours, to replace the separated bones without administering some anæsthetic. Dislocation is by no means so frequent an accident as fracture. The joint which is most prone to dislocation is the shoulder ; next in frequency are the hip, elbow and ankle. Like all other injuries from great external violence, dislocation more frequently occurs with men than with women. It is occasionally complicated by fracture of one or more bones very close to the joint. This compound injury generally renders the treatment of the dislocation very difficult, as the surgeon cannot apply any extension to the short terminal fragment.

DISLOCATION, APPARENT

In children and young persons a peculiar injury is sometimes met with near a joint which may be readily mistaken for a dislocation ; this is the injury called by surgeons “ separation of epiphyses.” Up to the age of sixteen or eighteen years, and in some instances beyond this, the long bones of the extremities are not single masses composed entirely of osseous tissue, but the joint ends are separated from the shaft by layers of a tough gristly structure, which, as the person approaches to adult age, gradually disappears, leaving the terminal portions and the intervening shaft to be converted into one long cylindrical bone. These remote and articular portions, before their fusion with the rest of the bone, are called epiphyses, and whilst in this condition may, through external violence, be detached from the shaft and displaced, thus producing the symptoms of dislocation or fracture.

DISLOCATION, COMPOUND

Some joints are much more disposed than others to compound dislocations. The accident is rare at the hip, shoulder, and knee, but is very frequent at the ankle, elbow, and wrist.

DISLOCATION, PRINCIPLES RELATING TO

The following are some of the chief principles relating to the present subject laid down by Mr. Pott, the well-known surgeon to St. Bartholomew's Hospital.

1. Although a joint may have been dislocated by means of considerable violence, it does by no means follow that the same degree of violence is necessary for its reduction.
2. All the force used in reducing a luxated bone, be it more or less, be it by hands, towels, ligatures, or machines, ought always to be applied to the other extremity of the said bone and as much as possible to that only.
3. In the reduction of such joints as are composed of a round head, received into a socket, such as those of the shoulder and hip, the whole body should be kept as steady as possible.
4. In order to make use of an extending force with all possible advantage, and to excite thereby the least pain and inconvenience, it is necessary that all parts serving to the motion of the dislocated joint, or in any degree connected with it, should be put into such a state as to give the smallest possible degree of resistance.
5. In the reduction of such joints as consist of a round head, moving in a socket—for example, the shoulder and hip—no attempt ought to be made to replace the head until it has by extension been brought forth from the place where it is, and nearly to a level with the socket. All that the operator has to do in these instances is to bring the bone to this level ; the muscles attached to it will, for the most part, do the rest for him.
6. Whatever kind or degree of force may be found necessary for the reduction of a luxated joint, such force should be employed gradually ; the lesser degree being always first tried and being increased gradually.

With respect to the second maxim, Sir Astley Cooper stated that, so far as he had had an opportunity of observing, it was generally best to apply the extension to the bone which was dislocated ; but that dislocations of the shoulder were exceptions, in which he mostly preferred to reduce the head of the bone by placing his heel in the armpit, and drawing the arm at the wrist, in a line with the side of the body. Extension may either be made by means of assistants, who are to take hold of napkins or sheets, put round the part at which it is judged proper to make the extension, or else a multiplied pulley may be used. In cases of difficulty, Sir Astley Cooper thought the pulley should always be preferred. When the attempts at reduction fail in consequence of the muscular strength of the patient, which counteracts all efforts to replace the bone, or from several days having elapsed since the receipt of the injury, constitutional means should be employed in conjunction with those that are mechanical. The constitutional means here referred to are those which produce a tendency to fainting, such as bleeding, the hot bath at 100° or 103° F., and small quantities of emetic tartar to produce nausea, but not vomiting. (Nowadays the use of chloroform in such cases has rendered the employment of so-called constitutional means a thing of the past.) All that is necessary after the reduction of a simple dislocation is to apply to the part cloths dipped in Goulard water, or spirits of wine and water, with a proper bandage, and to keep the limb perfectly easy. In compound dislocations, the reduction must be effected without delay, and with as little violence and disturbance as possible, and then the wound is to be treated in all respects as any other wound in the same part.

DISLOCATION, REDUCTION OF

If the dislocation has been left unreduced for a week or ten days, it becomes necessary to place the patient thoroughly under the influence of chloroform, for the purpose of relaxing the tense muscles which prevent the return of the displaced bone. In dislocations of six weeks' or two months' standing, the chances of a reduction will depend upon the situation of the injury. If the shoulder be affected, well-directed attempts, under the influence of an anæsthetic, will probably replace the head of the bone. With the hip, however, the chances of recovery are not so good at the end of a month after the receipt of the injury. After an interval of six months, the case is generally hopeless ; the limb, however, does not remain immovable and quite useless ; the head of the dislocated bone, by its pressure, forms for itself a fresh socket in that portion of the adjacent bone on which it was thrown at the time of the accident ; fresh sinews are formed, the muscles adapt themselves to the altered state of things, and a new joint is formed, which allows the patient considerable, though far from perfect, use of his arm or leg. This favourable process is carried on only in strong and healthy individuals.

DISLOCATION, SIGNS OF

The signs which indicate a recent dislocation are : Inability to move that part of the limb immediately below the seat of injury, the displaced extremity of the bone being fixed in its unnatural position ; pain in the injured joint, which varies in intensity in different cases ; sometimes the displaced bone presses upon one or more large nerves and then causes much suffering. Some swelling of the surrounding soft parts and bruising of the skin are generally present. Finally, but more important than any other sign, there is deformity in the joint ; this can usually be recognized at the first glance ; sometimes there is flattening, as in dislocations at the shoulder, and at other times well-marked unnatural prominence of one or more bones, as in the elbow and ankle. It should be borne in mind that all these symptoms are common to dislocation and to fracture near the joint-end of a bone; but in fractures the segment of bone below the injury is usually very movable, and one may generally detect, on moving the broken parts, the peculiar grating noise, called by surgeons crepitus, which is felt rather than heard, both by patient and medical attendant. In pure dislocation this crepitus is absent. Another distinction between dislocation and fracture consists in this: when once the deformity attending the former injury has been removed by surgical manipulation, or setting of the joint, as it is called, it does not return, as the head of the displaced bone when brought back into its socket remains there; with fracture, on the other hand, there is a constant tendency for the fragments of bone to become displaced, until they are joined together by young bone in the course of the treatment.

DISLOCATION, SURGICAL TREATMENT OF

This consists in pulling at the part below the injured joint—extension; in keeping the parts immediately above the joint fixed—counter-extension; and in endeavouring with the hand to elevate or replace the dislocated bone—manipulation. In recent cases of dislocation of the shoulder and elbow and of most smaller joints, a sufficient amount of extension may be obtained by the unaided efforts of the surgeon and one or two assistants; but in recent displacements of the upper extremity of the thigh-bone and in most old dislocations of other joints the pulleys are required. Counter-extension is generally kept up by means of a napkin, jack-towel, or folded tablecloth. The reduction of the bone is indicated by a sudden snap, the form of the joints and its functions are at once restored, and the pain is very much relieved; the whole limb also recovers its natural length and position in relation to the rest of the body. The subsequent treatment consists in confining the limb for a period varying with the size and situation of the injured joint. In dislocation of the shoulder, the arm is bandaged to the side of the body for about two weeks, and in dislocation of the hip it is necessary for the patient to remain in bed for some time. The muscular power and general tone of the limb are restored by shampooing and friction, affusion of cold water and the use of liniments. Recovery can never be complete, as the dislocated joint always remains weaker than any of the other sound joints. In a healthy and young or middle-aged subject, where the injury has been properly treated, this difference is scarcely appreciable; but in old people, and those who are rheumatic or gouty, the joint remains more or less stiff and painful, and is much affected during climatic changes and after exposure to cold and wet.

DIURETIC INFUSION

See Infusions.

DIZZINESS IN EAR DISEASE

Dizziness, accompanied sometimes with reeling, nausea and vomiting, may be an attendant of various forms of ear disease. In rare cases, in addition to these symptoms, there may be stupor, unconsciousness, or epileptic seizures, and the patient may be thought to be in an ordinary epileptic fit. Foreign bodies in the ear have produced not only symptoms of fits, but also temporary paralysis. The removal of the foreign substance from the ear has been followed by an instantaneous and permanent disappearance of all these peculiar phenomena. It can be said that dizziness may be produced by disease in the external, the middle or in the internal ear, and also by disease in the nerve of hearing itself.

DORSAL VERTEBRÆ

The name given to the vertebræ of the spine between the cervical vertebræ, or vertebræ of the neck, and the lumbar vertebræ or vertebræ of the loins. As their name implies, they constitute the vertebræ, of the shoulders (or between the shoulders) and back.

DRAINS AND DRAINAGE

The importance of drains and drainage from a sanitary point of view is universally admitted. The drainage system of a house must be sufficient for the removal of all superfluous water and of all matters which are soluble in water, or can be so mixed with it as to be carried away by it. It is therefore necessary that all house-drains should be large, air-tight, and laid with a proper fall or slope. In view of health and comfort, the egress of foul air should be prevented by having suitable sinks or drains fitted with traps, of which there are sundry sorts. Open sewers and drains are an abomination, and the noxious gases emitted by them are a fruitful cause of typhoid fever, not to speak of other deadly diseases. The sewer-pipes are exceedingly apt to leak at the joints if made from earthenware, as is often the case ; and they are also liable to be broken by the settling of walls, sand, or gravel-beds, etc. Even if these accidents are avoided, the material of the pipe is by no means impervious ; and, in fact, the only safe drain-pipes for noxious materials of this kind are those made of iron, securely united by leaden joints, and so laid as to be protected from undue pressure. These, too, should be regularly inspected, as rusting sometimes goes on with unusual rapidity. The course of the drain should be as direct as possible, without angles, and with the greatest fall that can be obtained. If it necessarily passes under the house, although it is better otherwise, it should be imbedded in at least six inches of cement. The drain should always be trapped and ventilated. All waste pipes should be sufficiently large to allow of a free flow. The soil-pipes of water-closets and urinals are ordinarily of too small a calibre. A competent authority has declared they should never be less than four inches in diameter. They must be composed of very strong cast iron, with water-tight joints, protected against rust by several coats of paint inside and out. When practicable, the course of these pipes should be on the outside and not, as commonly is the case, through the interior of the house. Porous stone is a bad material for sinks ; the best is wood lined with lead, glazed stoneware, or slate. A good-sized window, communicating directly with the outer air, is an indispensable requisite for every water-closet, which, moreover, ought to have two doors, enclosing a lobby between and made always to open inwards, to prevent the passage of bad air into the interior of the house. It is not necessary to look upon serious illness simply as a visitation of Providence, and, having called it "malaria," to feel that you have reached the bedrock of the subject. Go to the bottom of your own, or your neighbour's, swill-pail, examine your drains, etc., and never rest till you have satisfied yourself that your own want of intelligent oversight is not to blame for the diphtheria, dysentery, or typhoid fever. If your own premises are in order, suspect your neighbour and try to rouse his attention to the matter. The sewers, which in most cities and large towns are supposed to carry off the superfluous liquids or "slops" of all kinds, frequently become imperfect; and the foul fluids—liquid poisons, as they have been most appropriately entitled—stand still in hollow places, or soak through bad joints, and contaminate the drinking-water or the air upon which we are dependent. Make it a rule, therefore, neither to sleep nor eat in a house where the drains are not in perfect order, and do not trust to the absence of a bad smell as sufficient evidence that no poisonous effluvia are escaping from sewers, or any of the connecting pipes by which waste water finds its outlet. Above all, reject stationary washstands in bedrooms, or bathrooms, and other "modern conveniences" adjoining sleeping or living rooms. Such modern conveniences are in reality conveniences for the ready entrance of typhoid fever, diphtheria, and other dangerous diseases into your dwellings, and all the ordinary forms of "traps" and ventilators, no matter how well they are kept in order, mechanically, seem to have proved powerless to prevent the admission of these terrible maladies. The words of a well-known medical man, with regard to constant cleanliness, may be quoted here:—"Use water abundantly. A deficiency of water means personal cleanliness not attended to, clothes not properly washed, rooms not thoroughly scrubbed out and cooking and dishes not the most cleanly. The abuse of water does not lie in the large or liberal use of it, but in rendering what we do use uncleanly and unfit for healthy use."

DRAUGHTS, MEDICINAL

Alkaline Draught.—A very pleasant alkaline drink may be made by dissolving two or three drachms of bicarbonate of potash in two pints of water, adding an ounce of either syrup of orange-peel or syrup of lemons. This is very useful in rheumatic fever and in those cases in which the urine, when it cools, deposits a reddish or brick-dust sediment.

Antispasmodic Draught.—Take of solution of the hydrochlorate of morphia, fifteen minims; spirit of ether, a drachm; peppermint water, sufficient to make an ounce and a half. This is a useful preparation in cramping pains in the stomach and bowels.

Antispasmodic Draught (another).—Take of spirit of chloroform, half a drachm; aromatic spirit of ammonia (spirit of sal volatile), half a drachm; compound tincture of cardamoms, two drachms; peppermint water, nine drachms; mix. This is a useful draught in cases of flatulence accompanied by griping or colicky pains. It may be repeated in three or four hours, if necessary.

Cathartic Draught.—Take of Epsom salts, from two drachms to half an ounce; dilute sulphuric acid, ten to twenty minims; water, half a pint. To be taken the first thing in the morning on an empty stomach. Useful in bilious attacks due to over-indulgence at the table and as a purge in people of plethoric habit of body.

Compound Mixture of Senna or Black Draught.—This preparation consists of Epsom salts, extract of liquorice, tincture of senna, compound tincture of cardamoms and infusion of senna. It is given in doses of an ounce to an ounce and a half in cases similar to the last.

Diaphoretic Cooling Draught.—Take of ipecacuanha wine, ten to twenty drops; sweet spirit of nitre, an equal quantity; solution of the acetate of ammonia, two drachms; syrup of orange-peel, a drachm; camphor mixture to make an ounce and a half. May be repeated in four hours. Very useful in common cold and febrile and inflammatory attacks. It causes the skin and kidneys to act more vigorously and so allays the heat of the body and diminishes thirst.

Saline Draught.—Take of bicarbonate of potash, twenty grains; syrup of lemons or syrup of orange-peel, a drachm; water, an ounce and a half; mix. In order to make this into an effervescing, cooling draught, a tablespoonful of lemon juice, or fifteen grains of citric acid, should be added. This draught is beneficial in quenching thirst and allaying the nausea sometimes accompanying febrile disturbance. It also tends to diminish the heat of the body. It is given in inflammatory and febrile affections.

Sleeping Draught.—Take solution of the hydrochlorate of morphia, or laudanum, or nepenthe, thirty minims; syrup of tolu or syrup of orange-peel, a drachm; camphor water to an ounce and a half; mix and take at bed-time. Useful in cases of sleeplessness accompanied with pain. As laudanum frequently gives rise to headache, the nepenthe may be found to answer better.

Sleeping Draught (*another*).—Take of bromide of potassium, thirty grains; tincture of henbane, thirty minims; camphor water, an ounce and a half. This is a useful draught to procure sleep in cases of nervous irritability, or where there is no apparent cause to account for the patient's sleeplessness.

Tonic Draught.—Take of aromatic spirit of ammonia (spirit of sal volatile), half a drachm; compound tincture of gentian, two drachms; water, to an ounce and a half or tincture of ginger, half a drachm; compound tincture of cardamoms, two drachms; water to an ounce and a half. To be taken half an hour before dinner.

DREAMING

This has been defined as the wakeful and sentient condition of some of the faculties of the mind whilst the others are asleep. This may be regarded as a reasonable definition and explanation of an operation of the mental power which has been a source of perplexity to many and the cause even of superstitious feeling.

DREAMS

Speaking of dreaming, George Henry Lewes said that "dreams are mental processes closely allied to the reveries carried on during waking hours. In sleep the external senses are almost entirely closed against their ordinary stimuli and the active organs are in repose. The consequence is that all, or nearly all, those multifarious sensations which, through the five senses and the muscles, stimulate the activity of the brain during the waking hours, have no longer any influence in swelling the stream of consciousness, or in determining the direction of the thoughts. We do not see objects, smell odours, hear sounds, or taste flavours; even the sense of touch has no distinctness, such as would create the perception of objects, but is confined to a general feeling of contact with the bed-clothes. Now, whoever for a moment reflects on the immense influx of sensation which is incessantly stimulating the brain, through the senses, during waking hours, and reflects on their influence in determining the direction of the thoughts and in furnishing the mind with materials, will see at once that the removal of such a source of excitation must very considerably alter the mental conditions. Instead, therefore, of marvelling that dreams should be incongruous with waking thoughts, our marvel must be to find so much congruity as we often discover between them."

DRINK, WHEN TO

A few general rules which have been laid down on the subject of drinking cannot fail to be useful to many, and the opportunity may be taken to remark that even in regard to so innocent a beverage as cold water a great many people are guilty of drinking to excess. There are many complaints which have no other origin than the pouring of water, beyond the needs of nature, down the throat and this, apparently harmless as it is, has proved extremely prejudicial to health till the practice was broken off. Drink, in some form or other, is indispensable to the solution and digestion of food, and to repair the waste which our fluids are incessantly suffering. In the use of liquid, as of solid food, desire is the best guide. We ought to drink only when we are thirsty, and to desist when our thirst is quenched. The more we eat and the drier our food is the more we ought to drink in moderation. The phlegmatic require less drink than the sanguine and choleric, the sedentary than the laborious, and all persons need less in winter than in summer. To drink immediately before a meal is improper, because the stomach is thereby distended and the gastric juice diluted, and digestion, consequently, cannot proceed in so favourable and perfect a manner. Hence, to avoid the necessity of drinking, one should not take violent exercise before dinner. It is also somewhat objectionable to drink much during the time of taking food, as the same consequences ensue as from drinking directly before a meal. To take a small quantity of drink at meal time may be tolerated, but a large proportion of fluid swallowed at this period renders the stomach incapable of receiving the due portion of aliment and impedes the digestive process. At the same time if persons would acquire the habit of postponing all drink till an hour after dinner or other solid meal we should hear much less of indigestion than we do nowadays. The objection to drinking during dinner is that the practice tends to encourage insufficient mastication—in other words, the bolting of food. There is no occasion to drink any intoxicant either during or after a meal. Nothing assimilates so well with food as cold water, but those who dislike this may try milk or soda and milk.

DRINKING, EXCESSIVE EATING AND

See EATING AND DRINKING, EXCESS IN.

DRINKING WATER

Certain conditions must be fulfilled by all water for drinking. It should be without taste and it must have no smell, even when warm. It should be perfectly clear and neither cloudy nor yellowish. It must always contain air dissolved in it.

This air consists of three gases—nitrogen, oxygen and carbonic acid. Boiled water, in consequence of its having lost its gases, is flat and insipid. From two to five cubic inches of gas should be held in solution in every 100 cubic inches of water. Water should also contain certain mineral matters dissolved in it. The chief of these is carbonate of lime, but sulphates, chlorides, and nitrates of sodium, magnesium, etc., are likewise present. But these dissolved mineral matters need not exceed a few grains and certainly should not amount to 30 grains in the imperial gallon of water, which weighs 10 lbs., or 70,000 grains.

DROPSY

(Latin, **hydrops,** "dropsy"; formerly called hydropsy).

Dropsy is an abnormal collection of serous or watery fluid in the cellular membrane, beneath the skin or in different cavities of the body, and receives different technical appellations according to the particular situation in which it is lodged. The chief varieties are—

1. Dropsy of the cellular membrane, appearing on the surface of the body, under the skin, either generally or partially. It is called Anasarca when general, Œdema when partial.
2. Dropsy of the belly, that is, in the cavity of the abdomen; called Ascites.
3. Dropsy or water, in the chest; called Hydrothorax.
4. Dropsy of the head; called Hydrocephalus.
5. Dropsy of the scrotal bag; called Hydrocele.

Dropsy, under whatever form it takes place, is in most instances a disease of debility. Its general causes are those which induce debility, either general or local, such as protracted fevers; long exposure to cold and moist atmospheres; excessive labour; unkindly childbearing; excessive use of ardent spirits; habitual indigestion; great loss of blood; drinking cold water when heated; and insufficient or innutritious and indigestible food. Positive disease in some important organ is a frequent cause, particularly disease in the heart, digestive tube and liver. The immediate cause of all kinds of dropsy is, either a profuse exhalation on the part of the small arteries and veins of the dropsical part, or a want of action in the absorbing vessels; or both may be united. Dropsy is always a formidable and often a highly dangerous disease. Its acute forms, though attended with the most urgent symptoms, are, in general, less unfavourable than most of its chronic forms, because in the former, though the disordered actions may be very intense and dangerous, yet they are more under the control of remedial agents and often do not depend on any irreparable vice of the constitution, whereas the latter are the sign and the result of deep-seated and surely advancing disease. Of course the prognosis in any particular case must entirely depend on the seat and nature of the disease of which it is the sequel.

DROPSY, TREATMENT OF

There is no disease which requires a more varied treatment than dropsy, because, like fever, dropsy may exist in, and be essentially connected with, diametrically opposite morbid conditions of the system. The principal means of evacuating the accumulated fluid in all dropsies are by the employment of certain purgative and diuretic medicines, and by scarification, or other cutaneous drains. Elaterium, cream of tartar, black hellebore, the inner bark of the elder tree, gamboge, and senega root are generally considered to be the most efficacious purgatives in this disease ; and foxglove, squill, meadow saffron, nitrate of potash, subcarbonate of potash, and hedge-hyssop the most valuable diuretics. Cream of tartar has been a favourite medicine in dropsy with many celebrated physicians. From one drachm to half an ounce of it, mixed with ten grains of powdered ginger, may be given as a cathartic ; it may be combined with two grains of gamboge and given in the same way. Mixed with a large quantity of water, it quenches the thirst very pleasantly and the patient should, therefore, take this drink as a common beverage. Black hellebore has also been highly praised. The diet, in all dropsical cases, ought to be nourishing, that food being selected which is easiest of digestion. The pungent aromatic vegetables are also proper, such as garlic, onions, cresses, horse radish, etc. ; and the patient's strong desire for drink may be freely gratified, for which purpose cream of tartar dissolved in a large quantity of water, butter-milk, table-beer, weak cider, or cider mixed with water, will be among the most useful beverages he can resort to. After the water has been evacuated, we must endeavour to invigorate the constitution by the use of bitter and metallic tonics, with aromatics, regular exercise, change of air and the cold bath.

DROWNED, TREATMENT OF THE APPARENTLY

The following directions are published by the Royal National Lifeboat Institution, London :—

1. *Preliminary Acts.*—Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly* on the spot, in the open air, with the face downwards, whether on shore or afloat, exposing the face, neck and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces. The points to be aimed at are—first and *immediately*, the restoration of breathing, and secondly, after breathing is restored, the promotion of warmth and circulation.

2. *To Restore Breathing.—To Clear the Throat.*—Place the patient on the floor or ground with the face downwards and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth. If satisfactory breathing begin, use the treatment described below to promote warmth. If there be only slight breathing, or no breathing, or if the breathing fail, then turn the patient well and instantly on the side, supporting the head, and excite the nostrils with snuff, hartshorn and smelling salts, or tickle the throat with a feather, etc., if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water alternately, on them. If there be no success, lose not a moment, but instantly *imitate breathing.* To imitate breathing, replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress. Turn the body very gently on the side and a little beyond, and then briskly on the face, back again, repeating these

measures cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side. (*By placing the patient on the chest, the weight of the body forces the air out; when turned on the side, this pressure is removed, and air enters the chest.*) On each occasion that the body is replaced on its face, make uniform but efficient pressure with brisk movement on the back between and below the shoulder-blades or bones on each side, removing the pressure immediately before turning the body on the side. During the whole of the operations let one person attend solely to the movements of the head and of the arm placed under it. The result is *respiration or natural breathing* and, if not too late, *life*. Whilst the above operations are being proceeded with, dry the hands and feet, and, as soon as dry blankets or clothing can be procured, strip the body and cover or gradually reclothe it, but take care not to interfere with the efforts to restore breathing.

3. *Sylvester's Method of Imitating Breathing.*—Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. Sylvester's method, as follows: Place the head and the back on a flat surface inclined a little upwards from the feet; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades. Draw forward the patient's tongue, and keep it projecting beyond the lips—an elastic band over the tongue and under the chin will answer the purpose, or a piece of string or tape may be tied around them, or by raising the lower jaw the teeth may be made to retain the tongue in that position—and remove all tight clothing from about the neck and chest, especially the braces. *To imitate the movements of breathing*: standing at the patient's head, grasp the arms just above the elbows, and draw the arms gently and steadily upwards above the head, and *keep them stretched* upwards for two seconds. (By this means air is drawn into the lungs.) Then turn down the patient's arms and press them gently and firmly for two seconds against the sides of the chest. (By this means air is pressed out of the lungs.) Repeat these measures alternately, deliberately and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to *induce circulation and warmth.*

4. *Treatment after Natural Breathing has been Restored.*—To promote warmth and circulation, begin rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, etc. (By this measure the blood is propelled along the veins towards the heart.) The friction must be continued under the blanket or over the dry clothing. Promote the warmth of the body by the application of hot flannels or bottles, bladders of hot water, heated bricks, etc., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. On the restoration of life, a teaspoonful of warm water should be given and then, if the power of swallowing have returned, small quantities of wine, warm brandy-and-water, or coffee should be administered. The patient should be kept in bed and a disposition to sleep encouraged.

5. *General Observations.*—The above treatment should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

6. *Cautions.*—Prevent unnecessary crowding of persons round the body, especially if in an apartment. Avoid rough usage and do not allow the body to remain on the back unless the tongue is secured. In no circumstances hold the body up by the feet. On no account place the body in a warm bath unless under medical direction, and even then it should only be employed as a momentary excitant.

DROWNED, TREATMENT OF THE APPARENTLY, HOWARD'S

A method of treating the apparently drowned, said to be in many points superior to that just described, was invented by Dr. Howard, of New York. It received the national prize of the American Medical Association, and has been adopted by the Life-saving Society of New York. This "direct method," as Dr. Howard called it, has two positions :—

1. *To Pump and Drain Fluids from Lungs and Stomach.*—This is done by placing the patient face downwards over a hard roll of clothing, so that the pit of the stomach is the highest point, while the mouth is the lowest. The operator supplements the pressure of his hands upon the back of the patient, above the roll, if necessary, with all the weight and force at his command.

2. *For Artificial Breathing.*—The patient, whose clothing is ripped open from the waist, is laid upon his back, and the pit of the stomach is made the highest point by a hard roll of clothing beneath the back, while the head is the lowest part. The wrists are crossed behind the head : these a second person, if present, pins to the ground with one hand, while with the other the tongue is held forward by a piece of dry rag. The greatest possible expansion of the chest is thus obtained. The operator, kneeling astride the patient, grasps the most compressible part of the chest, on each side of the pit of the stomach and, using his knees as a pivot, throws forward, slowly and steadily, his whole weight, until his mouth nearly touches the face of the patient. Then, by a final push, he throws himself back to his first erect kneeling position. By the sudden removal of the compressing force, the elastic ribs spring back to their original position, and by this bellows action the air rushes into and is forced out of the chest alternately, as in natural breathing. Success may attend this process in a few minutes, but hope of a favourable result ought not to be given up under an hour.

In addition to its superior effectiveness, Dr. Howard claimed for this method the conspicuous advantage of unequalled simplicity. It is usually found that one of the most notable facts connected with cases of drowning is the absence of medical aid at the critical moment. Now, experience has shown that the direct method can easily be understood by the most illiterate persons, and may be carried into execution anywhere, with or without a doctor.

DROWNING

In a case of pure drowning, the person first sinks to a certain depth and then ascends to the surface of the water, where, if he be not a good swimmer, he struggles to clear his lungs and mouth and to obtain fresh air. As water is generally taken in with the inspired air, the patient sinks again for a short distance and then by his exertions again succeeds in reaching the surface. These struggles are repeated until the lungs and stomach are filled with water and the general specific gravity of the body is increased. The body then sinks to the bottom of the water. The duration of this contest for life will vary according to the sex, age, strength and general condition of the person. Fat persons float more readily than those who have large bones without any unusual amount of adipose tissue. Women and children float longer than adult males, their skeletons being smaller, and the fat more abundant. After the final submersion, the dying person still endeavours to breathe, and the remaining portion of air is forced out from the lungs by the entrance of more water and rises in bubbles. Death is preceded by convulsive movements of the extremities, the patient having by this time become unconscious and insensible. According to Dr. Taylor, who accidentally experienced all the phenomena of drowning up to this point, " there is not the least sensation of pain and, as in other cases of asphyxia, if the individual recover, there is a total unconsciousness of suffering during the period when the access of air was cut off from the lungs." The cause of death in cases like the above is apnœa, or suffocation. When the air no longer enters the lungs, the venous blood which passes through these organs is not fitted, in the absence of oxygen, which alters dark and venous into bright red and arterial blood, to keep up the nutrition of the various organs of the body. This arrest in nutrition is indicated by unconsciousness and convulsions, by palsy of the muscles, including those of respiration, cessation of the action of the lungs and, finally, stoppage of the heart's movement. In cases of drowning, however, death is not always due to simple apnœa. Strong persons who struggle much at the surface of the water and make violent muscular efforts to save themselves die as much from exhaustion as from suffocation. Weak and delicate persons, on the other hand, may die from syncope, shock, or sheer fright. Again, in diseased or aged people, cold and intense mental excitement may cause apoplexy, or arrest the action of a disordered heart. In consequence of the body falling on some hard mass before it reaches the water apnœa may be complicated by concussion or compression of the brain, or severe injury of some other important organ. The question as to how long a human being may be submerged and yet be recoverable, has not been ascertained ; it is impossible to fix a definite time. According to the officers of the Royal Humane Society of London, persons who have been under water for more than four or five minutes do not generally recover. But, on the other hand, cases have been reported in which recovery took place after submersion lasting for fourteen minutes and even half an hour. According to Dr. Taylor, however, the recorded cases of restoration after submersion for half an hour or upwards are to be regarded as " extravagant fables."

DRUM-HEAD

The drum-head, otherwise called membrana tympani, is that part of the ear forming the partition between the external ear and the middle ear, or drum cavity. The drum-head is popularly called the drum, but this is not a strictly correct term to apply to it. It is really the outer wall of the drum. The latter name is applied only to the cavity of the drum, or middle ear.

DRUM-HEAD, GROWTH OF FUNGI ON

Among the causes of inflammation of the drum-head, the growth of fungi and swabbing of the ear require special mention. The latter irritates by packing back upon the drum-head masses of wax and dead skin, which were never intended to remain in the ear. The growth of the fungus aspergillus on the drum-head and the wall of the auditory canal is not uncommon. The cause of it is by no means neglect of the ear ; it is usually one of the results of too much swabbing and picking of the ear. This causes irritation of and discharge from the skin of the canal, and the fungus is thus invited to grow in the ear as the small quantities of discharge putrefy. The fungus by instinct seeks a secluded spot for growing and is thus led to grow first and chiefly on the drum-head, which forms the bottom of the auditory canal. The attack thus made by the fungus on the delicate skin of the drum-head soon inflames the latter. Unfortunately, the worst thing which the patient can do is now usually done, for oil is poured into the ear. This feeds the fungus ; in fact, many cases of the growth of this fungus are directly traceable to the use of oil for some previous ear-disease. The oil having been allowed to remain in the ear until it has become rancid, the fungus, of course, seeks the ear as a favourable place for growth. One of the best forms of treatment for an ear infested by the fungus aspergillus is syringing with tepid or warm water. This not only allays pain, but destroys and removes the parasite.

DRUM-HEAD, INFLAMMATION IN THE

Inflammation in the drum-head is sometimes excited by the entrance of cold water into the external ear. A similar inflammation may be excited by the entrance of very cold air into the ear. But the former is the cause of a number of cases of ear disease, especially in boys, after prolonged swimming in the sea or river in summer time. Girls, too, who take to swimming, are thus exposed to the evil results of too much cold-water bathing. They should be careful not to remain too long in the water. Pain is characteristic of various diseases of the external air. But as the middle ear, especially the drum-cavity, is the part of the ear most frequently attacked by inflammation, the cause of ear-ache may be said to lie usually in that cavity. Excepting boils in the ear, no pain is equal in severity to the excruciating ear-ache produced by inflammation in the cavity of the drum. It is here that most ear-aches in children arise. The causes of this disease of the ear in childhood are chiefly scarlet fever and measles. Teething, whooping-cough, and severe colds in the head or chest also furnish a certain number of cases of ear-ache, that is, of inflammation of the drum. Inflammation of the drum in adults is produced by exposure to colds and the consequent "catching cold." It may also attend pneumonia and other lung diseases in the adult. Very often the pain is cut short, both in adults and children, by the spontaneous rupture of the drum and the discharge of matter. The natural question arises, What is to be done to cure ear-ache arising from inflammation in the drum ? In the early stages of ear-ache from closed Eustachian tube and congested drum cavity, a vigorous blow of the nose—the air being held in as much as possible, so as to force it backwards into the throat—may give relief by opening the Eustachian tube. However, the pain may not be entirely due to the closure of the tube, but to absolute inflammation of the drum cavity. The blowing of the nose would, of course, now fail to give all the relief desired, and the pain would soon return, especially towards night, with greater severity, if the cavity of the drum be inflamed. Much relief will be obtained by syringing the ear gently with very warm water, or very warm water may be poured into the ear from a spoon. Sometimes breathing into the ear with the mouth wide open and close to the ear of the sufferer will give relief to ear-ache. In addition to these methods, warm water and laudanum, equal parts of each, may be dropped into the ear and allowed to rest there a few minutes. Cloths wrung out of very warm water may be placed around the painful ear, but never over it. If laid over it, such dressings tend to produce " proud flesh " in the ear. But beyond these modes of domestic treatment for ear-ache no one should go without consulting some one who understands the structure of the ear and the treatment of the disease.

DRUM-HEAD, INJURIES AND DISEASES OF THE

The drum-head, as might be supposed from its thinness and comparatively exposed position, is liable to injuries, producing in it perforation, rupture and inflammation. A perforation or rupture in this delicate membrane is not as directly injurious either to hearing or to health as is generally supposed. In some respects a simple perforation in the drum-head is of no consequence, as it will heal rapidly in a healthy membrane. Indeed, some forms of deafness are cured by a perforation in the drum-head. The most common forces which produce accidental perforation of the drum-head are concussion in the form of unexpected explosions and boxes on the ear. These accidents are common among soldiery, spectators at military reviews and sportsmen, and they have occurred by the sudden explosion of gas-bags used in chemical experiments. In order to provide against such accidents, the soldier, during heavy cannonading, opens his mouth, so as to allow of an equal tension of air on each side of his drum-head through the Eustachian tube. Wearing cotton in the ears at such times has also been supposed to protect the drum-head from some of the force of concussion. The sudden explosion of gas-bags and many other accidental explosions can hardly be guarded against, as far as the ear is concerned. In the event of such an explosion, if the ear seems to be numbed, it should be examined immediately by an expert. A word of caution here, both to physician and patient. In all such cases of either supposed or ascertained accidental ruptures, nothing should be put into the ear. In all such cases, simply protect the mouth of the canal with a little dry cotton, and it will be found that, in the vast majority of cases, perhaps in all, the ruptured drum-head will heal, and if the nerve of hearing has not been injured by the concussion which has produced the perforation in the membranes, the hearing will not have been injured. It is altogether different when the rupture of the drum-head has been produced by disease and when a running from the ear continues. The drops will then do the more good the farther into the ear they penetrate. Another force productive of rupture of the drum-head, quite common among brutal people, is a box on the ear: this is inflicted not only upon children, but we have observed an instance of such an injury to the drum of a man, produced by a blow over the ear given in rude play. The treatment of such cases is the same as in the above. There is another class of injuries to the drum, produced by the accidental entrance of a long and sharp instrument into the canal. Thus whilst scratching one's ear with a pin, thin penholder, pencil, ear-pick, or any other similar object, the elbow may be jogged in various ways, and the pointed instrument being so very near the drum-head, the latter is quickly perforated. This, as a rule, causes a sharp dart of pain. Great care should be exerted to avoid all risks of perforating the drum, and one way to accomplish this will be most sedulously to avoid a habit, entirely too common, of scratching the ear with pins, hair-pins, and ear-picks, or, in fact, with anything but the finger.

DRUM OF EAR

See MIDDLE EAR.

DRUM OF EAR, LANCING

To those suffering with ear-ache from pent-up matter in the drum, the knife will bring the quickest relief. When the matter has formed behind the drum-head, and the latter has not spontaneously burst, it must be perforated. There is no occasion for fear; the surgeon's cut will soon heal and the drum will be safe. This exhortation seems demanded on account of the widespread, though entirely unjust, prejudice against perforating the inflamed drum-head.

DUMB-BELL EXERCISES

In gymnastic classes the pupils are put through a regular course of progressive exercises at the command of the teacher. For home practice, however, it will be sufficient if we merely indicate these and show how the bells may be most efficiently employed. First, then, we take up the bells. The raising and swinging of the bells take place from the standing position. Stoop, seize both bells, recover the upright position and raise them above the head. Repeat this by lowering the bells to the ground, bending the knees and then rising to the upright position. Moving the bells in horizontal and slanting planes forms the next exercise, and the pupil then proceeds to the circular movements, first with one and then with the other, and finally with both bells at once. These movements are succeeded by various elbow exercises—the fore-arm thrown out or raised and brought slowly back, the other arm swerving in like manner, and then both arms together. In the spread arms and the head swing, care must be taken to prevent the bells from clashing or striking against each other. A little practice will soon accustom the learner so to move his arms in graceful sweeps and curves as to avoid all chances of collision. As a rule, the elbows should be close to the sides at the starting of each movement. The movements are sufficiently indicated by the names given to them, the arms being extended horizontally in the former, and brought above the head in the latter; the arms being still straightened, each position of the body following in successive order till we get again the arms extended in spread-eagle fashion ; thence the exercises may be repeated again and again. The first of the four movements included in the shoulder feats is what is called the moving motion, in which the arms are brought straight to the front horizontally ; the second is the backward swing, in which the arms are thrown back, the horizontal position being still preserved ; the third the front present, in which the dumb-bells are brought close to the body in front of the chest ; and the fourth the extension, in which the arms are again thrown back, the dumb-bells being held somewhat lower than the waist. It will be seen that the gradations from one to the other are easy and natural. From the third position of the shoulder feats the learner is led to swing the arms and clang the bells behind the back. This is a favourite and useful exercise, and is known as "The Mantlet." After a little practice, he will be able to swing his arms and clap the palms of his hands together behind his back, of course in this case without the dumb-bells. The thrusting or striking motions are thus performed : at starting, keep the elbows close to the sides, bend the right arm and hold the bell to the chest. At the same instant raise the left high above the head. Reverse the arms and repeat the motion. Repeat the exercise again and again till perfect. The above comprise all the movements of the dumb-bell exercise that can be taught on paper. It does not seem, at first sight, that much can be taught ; but if the reading is combined with real practice, the learner will soon find that he has acquired absolute knowledge.

DUMB-BELLS, USE OF

Dumb-bell exercises are intended to strengthen the muscles which protrude and draw back the arms. But if heavy dumb-bells are used, another thing is called into play, namely, the support of their weight, whether close to the chest, or at a distance from the body ; and that means the use of another set of muscles, which will not be exercised —only strained. So, too, in respect of Indian clubs ; first-rate things they are for opening out the chest, but if they are too heavy, they only drag and strain the muscles, speedily tiring them out, instead of exercising them. But the exercises are easier with clubs than without them ; with them, too, several muscles are called into play which would not be exercised without them, and so clubs, light ones—or, at all events, not heavy ones, which tire the person during exercise by weight only —are preferable to dumb-bells. Dumb-bells are less in repute than they used to be, but when they are not too heavy, and the movements gone through are not too eccentric or difficult, they are very useful. There is harm occasionally from their weight being disproportionate to the weak frames which use them ; in which case they pull down the shoulders by dint of mere dragging. When this or any other exercise is resorted to in the house, the windows ought to be thrown open so as to make the nearest possible approach to the open air. For preliminary practice the dumb-bells should not exceed two or three pounds each in weight. For young people one pound will be sufficient to begin with. We all know the form of the old dumb-bells—masses of iron joined by a handle usually covered with leather. These have been replaced by bells entirely made of wood and in no case should the cast-iron bell be used by boys or girls of slight figure or delicate constitution.

DUODENUM

(Latin, **duodeni,** "twelve," that is to say, inches, so called from the length of the part).

The name given to the first part of the small intestine which is joined to the stomach, and is about eight or ten inches long.

DUPUYTREN'S SPLINT

See POTT'S FRACTURE.

DURA MATER

See NERVES.

DUST IN THE AIR

Dust in the air is composed of an infinite variety of materials, among which the microscope reveals innumerable epithelial scales from the skins of men and animals, hairs, fragments of wool, cotton and flax fibres, pollen grains, splinters of wood, bark, shreds of leaves, particles of coal, soot, sand, earth and many other articles too numerous or too disgusting to mention. Some of these irritate the lungs mechanically, as, for example, is the case with the angular fragments of anthracite and bituminous coal, which cause a peculiar form of lung disease, called "miners' consumption." This affection cuts short the days of an immense number of those who work amongst coal dust and after death their lungs are found to be filled with sharp particles of coal which, being inhaled with the breath, become imbedded in the substance of the lung and there, acting as so many little splinters in the flesh, give rise to innumerable minute boils or abscesses, by which the breathing apparatus is literally riddled with holes and so much of it destroyed that the sufferers die for want of lung tissue properly to supply their blood with air. The fine particles of steel thrown off in grinding saws and other tools give rise to "saw-grinders' consumption," the dust from the clay in potteries to "potters' asthma," and the fragments of wool, flax, etc., in cloth factories, cotton mills and the like, to bronchitis and other lung complaints. All these contaminations of pure air seem to have a merely mechanical effect ; but such impurities as phosphorus in match factories, lead in white-lead works, copper and brass in foundries—where the latter gives rise to "brass-founders' ague"—and especially arsenic in the green wall-papers, chintzes, etc., have a chemical and poisonous influence which it is worth a great deal of pains to avoid. Most of the victims to these various kinds of dust in the air are really sufferers through ignorance of the injurious or fatal effects of micro-organisms and particles. Those actively engaged in the occupations already named should wear respirators during working hours and never breathe save through the nostrils.

DYSENTERY

(Greek, **dus,** a particle implying evil, hardness, or difficulty ; **entera,** "the entrails").

Dysentery is a disease of hot climates. The belt between 35° N. and 35° S. is never free from it. Regions of India, Asia, the unexplored coasts of Africa, South America and the West Indies, within this belt, are dysentery countries. In the United Kingdom it is rare in the epidemic form, except in military life ; but it is common enough as a " scattered " or sporadic disease in the hot season to be classed properly among the diseases of summer.

DYSENTERY, CAUSES OF

The epidemic form of dysentery is thought to be due in whole or in part to miasmatic influences connected with the nature of the soil in particular regions ; with this, various other exciting causes concur in producing the attack in particular cases. The precise nature of the miasma is unknown, just as the precise nature of the malarial poison was doubtful before Sir Patrick Manson's memorable researches established a definite causal relationship between the mosquito and malaria. Unlike diarrhœa, dysentery is a disease, not merely a symptom.

DYSENTERY, SYMPTOMS OF

There is generally a varying amount of fever, with corresponding constitutional disturbance. The characteristic manifestations of the disease are distressing, twisting, colicky pains in the abdomen, with a constant tormenting desire to have the bowels moved, and violent straining and bearing-down pains ; these efforts resulting in the passage of small amounts of mucus or blood, or these commingled—often nothing more. The dysenteric symptoms are usually preceded for a few days by diarrhœa. The duration of the disease is from four to twenty-one days. The acute form may run on into the chronic in unfavourable circumstances. The structural changes in dysentery consist in inflammation and ulceration of the mucous membrane of the large intestine, especially and most commonly in its lower portion, the glands being especially involved. The restriction of the processes of the disease to this part of the bowel will explain the common limitation of pain, on pressure, to those portions of the surface of the abdomen overlying the large intestine, whilst the inflammation of the mucous membrane of the bowel explains the increased secretion of altered mucus and the presence of blood in the stools. The bearing-down pains and constantly-recurring desire to have the bowels moved are due to the swollen condition of the lining membrane of the bowel, and to spasm of its muscular coat, which is, doubtless, also concerned in producing the violent twisting pains in the abdomen which characterize the disease. There is no reason to believe that this form of dysentery is contagious. It is not usually a highly dangerous malady, except in certain cases. Its course appears to be modified by judicious treatment, and the management of each case should at once be placed in medical hands. " In every case of dysentery," says Dr. Johnson, " that has ever come within the range of my observation, two functions were invariably disordered from the very outset, and soon drew other derangements in their train. These were the functions of the skin and the liver ; or perspiration and biliary secretion. I defy anyone who has attentively regarded this disease at the bedside to produce a single instance in which these functions were carried on in a natural manner at any period of the disease."

DYSENTERY, TREATMENT OF

The diet should be scanty, but nutritious ; hot poultices with 30 or 40 drops of turpentine added to each should be applied to the abdomen and strict rest enjoined. It is desirable to remove all hardened fæces which may set up irritation, and for this purpose nothing suits so well, or gives the bowels so much relief, as copious injections of warm and very thin gruel. The hardened fæces having been removed, a totally different plan must be adopted ; no more copious injections, but enemata of an ounce or two of starch, containing 30 drops of the liquid extract of opium ; this may be repeated if necessary. At the same time it is desirable to give internally full doses of ipecacuanha, consisting of not less than from 30 to 60 grains, in any form which may be deemed desirable. The dose may be repeated in six hours, if necessary. If the patient gets over this, another kind of treatment must begin. Tonics must be given carefully, the bowels attended to and every sign of relapse closely watched. The diet must then be nourishing, but not bulky. Remedies may be given to prevent the contents of the bowels from putrefying, such as sulphite or hyposulphite of soda or sulphocarbolate of soda, or carbolic acid. If dysentery become chronic, change of climate is important, a mild and agreeable atmosphere doing great good. Sir Charles Locock says that " in severe dysentery, especially where there is sickness, there is no remedy equal to pure calomel, in full dose," and recommends at the very outset of the disease to give the patient three to five grains (according to age) of calomel, mixed with an equal quantity of powdered white sugar and put dry upon the tongue. In three hours afterwards, let the following mixture be administered :—Take of compound ipecacuanha powder, five grains ; ipecacuanha wine, half a drachm ; simple syrup, three drachms ; cinnamon water, nine drachms : to make a mixture. A teaspoonful every three or four hours, first well shaking the bottle. Dr. Baily, who made this disease his particular study, recommended, in cases where dysentery has continued for several days, a combination of castor-oil and opium—as, for instance : Take of mixture of acacia, three drachms ; simple syrup, three drachms ; tincture of opium, ten drops (not minims) ; castor-oil, two drachms ; cinnamon water, four drachms. Mix and take a spoonful every four hours, first well shaking the bottle. A warm bath, at the beginning of the disease, is very efficacious ; and a flannel bag, filled with table salt, made hot in the oven and applied to the bowels, will afford much comfort.

EAR

The ear is the most complicated organ of special sense. Its important parts lie deeply hidden in the hardest bone of the body—the petrous bone ; and on this account its complex nature is rendered all the more difficult to study. The external ear, *i.e.*, the auricle, or ear of common language, and the auditory canal which leads to the drum-head, the drum-head itself, and parts of the drum cavity, or tympanum, are visible from without and easily accessible in the living ; but all other parts of the ear are not naturally visible. Furthermore, the dimensions of the various parts of the organ of hearing, excepting the outside appendage, are very small, and in the case of the inner ear, where the nerve of hearing is spread out, they are microscopic.—*See* External Ear, Internal Ear, Middle Ear.

EAR, BOILS AND FUNGI IN THE

See Boils and Fungi in the Ear.

EAR AND HEAD, NOISES AND RINGING IN

There is no symptom, deafness alone excepted, more frequently complained of among aural patients than noises or ringing in the ears. All forms of ear disease may produce ringing, hissing, etc., in the ear, and sometimes these noises seem to extend into the head. It is important for the reader to know that some of these noises in the ear are easily curable, while others are hard, or even impossible to cure. Yet, in most cases, noises in the ear will in time cease. It should be borne in mind, however, that noises in the ear, accompanied by hardness of hearing, are indicative of aural disease ; but that sounds in the ear which are unattended with alteration of hearing are due to some derangement of the system, most probably in the stomach, or in the nervous system. Noises in the ear always demand attention, especially if they become persistent. An ordinary passing ringing or cracking sound in the ear calls for no notice. All subjective sounds can be treated only by the physician. It may be said that any attempts to cure these noises by putting drops in the ear will in all cases increase the noises. If the noise is due to the presence of a foreign body in the external ear, the removal of the offending matter will quell such noises as ringing, singing, etc., which may have been perceived in the ear.

EAR, FOREIGN BODIES IN

If, through any mischance, some foreign body, as a bean or a button, should have found its way into the ear, never poke and push at it. Should it be an insect, turn the head on one side, take hold of the tip of the ear at the top and pull the ear up a little ; this straightens the tube ; then pour sweet oil freely into the ear and hold it there for a while. The insect will float to the top and can be removed with the oil. (The notion that the earwig has a special predilection for the ear and capable of doing serious mischief in that situation is a popular error.) If any hard substance has been put in, a stream of warm water forced in behind with a syringe will drive it out. That side of the head should be held towards the floor, so that the object may fall out. But if it be something that will swell with moisture, as a bean, take the child to a doctor.

EAR, INSECTS IN

See INSECTS IN THE EAR.

EAR, INTERNAL, EFFECTS OF CONCUSSION ON

See CONCUSSION, EFFECTS OF, ON THE INTERNAL EAR.

EAR, SYRINGING THE

See SYRINGING THE EAR.

EAR-ACHE

See DRUM-HEAD, INFLAMMATION IN THE.

EAR DISEASE, DIZZINESS IN

See DIZZINESS IN EAR DISEASE.

EARS, PIERCING

See PIERCING FOR EAR-RINGS.

EARTH CLOSETS

These are contrivances for superseding water-closets, particularly in country places. In them, instead of pulling the handle and allowing a flood of water to sweep away all matter from the pan into the sewer, the same handle allows, from a hopper, a quantity of dry earth to fall and cover the evacuations. The dry earth completely prevents any smell from arising from them and apparently prevents all further decomposition. After a time the accumulated matters may be removed and constitute a valuable manure. Only one or two precautions are necessary to make them work well. Fluid excretions should, as far as possible, be kept apart from solid excreta and the earth used should be well dried before use. Imperfectly burned wood ashes, mixed with ordinary loam dried, make the best kind of earth to use. Sand does not suit well.

EATING AND DRINKING, EXCESS IN

Whatever opinion may be held on the temperance question, it is certain that nowadays there is to every one an abundance of warning as to the effects of alcoholic excess. The value of temperance in the other pleasures of the table is, however, not so often lauded or appreciated. Injury to the system from alcohol is great, injury from gluttony only less serious. Nature, no doubt, has provided for the removal of this excess ; but overwork brings on feebleness of the eliminating glands and an excess of noxious matter in the blood is a constant irritation to the emunctories ; enfeebled and irritated, no wonder these long-tried but faithful servants become fatally diseased. Many seemingly inscrutable cases of chronic disease of the kidneys, for example, depend upon excessive flesh-eating.

ECTROPIUM

A slight injury of the face below the eyes, or the simple contraction from some other cause of the skin of that part, may produce the deformity called ectropium, or eversion of the lower lid ; and the opposite state of inversion (entropium, or trichiasis) may result from a similar contraction of the edge of the eyelid itself. Severe inflammation and even blindness may be the consequence of the latter affection from the friction of the lashes against the globe. Both deformities may be remedied by a slight operation.

ECZEMA

(Greek, **ekzesis,** " a boiling out " ; from **ek,** " from " ; **zeo,** " I boil ").

Foremost among all skin diseases in importance, both from the numbers affected and the distress occasioned, must ever come this protean, multiform, or ever-varying eruption —eczema, called also salt rheum, or moist tetter. Attacking all classes and conditions, from the cradle to the grave, appearing about equally in both sexes, it forms, as shown by statistics, about one-third of all cases of skin disease. But this by no means indicates the frequency of the disease, for multitudes have it who never seek its cure, so that it may safely be regarded as forming nearly one-half of all existing cases of skin disease. The name " eczema " is not, however, an indefinite one for skin disease, as many suppose, nor for a class of diseases, but represents a well-defined affection of the skin, quite distinct from all other diseases. The forms under which eczema appears are so varied that it is difficult to give a brief definition of the disease, or a short description of its phases and conditions. It may be said, however, that eczema is an inflammatory, acute or chronic, affection of the skin, exhibiting varied appearances, according to the state of the eruption, its seat and the condition of the patient. Sir Malcolm Morris, in his classic manual on *Diseases of the Skin*, uses the term to connote " a catarrhal inflammation of the skin, originating without visible external irritation and characterized in some stage of its evolution by serous exudation." It is never a purely local disease, but always has some constitutional conditions at the back of it, foremost among which is debility. This debility may be general, or may affect single organs or systems, as the digestive, the nervous, etc., or even the skin itself, as when this organ has been enfeebled by one of the eruptive fevers, as scarlatina. Eczema often appears to be contagious, as when a whole family is attacked, or when a nurse has it after attending a child affected. But in these cases it is generally found that either the same influences are at work, producing the disease in all, or that some other eruption has been mistaken for eczema. In infancy, eczema may begin at any time, from a few weeks upwards, and, when well developed, exhibits a raw, moist, red surface, which tends to cover itself with crusts, which are replaced as often as they are washed off. Its most common seat is on the face and scalp and also about the buttocks. Very frequently during hot weather infants at the breast will be subject to a very slight form of popular eczema, or lichen, in which there are scattered red points, slightly elevated, on the cheeks or on the arms and body, which do not give much annoyance. This is called popularly a "heat eruption," "red gown," or "red gum," or "strophulus." It is an innocent affection, which may be relieved with a little zinc ointment (half a drachm to an ounce of cold cream). In children somewhat older—say from five to ten years of age—eczema is frequently seen as raw, moist, red patches behind the ears, or in the bends of the elbows or knees, or sometimes as separate, smaller and more inflamed spots, covered with crusts, especially about the hands and face. In older life, eczema is more apt to present varied appearances, which often render the diagnosis very difficult. No part of the body is exempt from liability to attack and at times the entire surface may be affected at once. The characters of redness and itching are always present, together with a certain amount of thickening of the skin. Writers speak of a variety of forms, but the disease in its real essence is always one and the same.

ECZEMA, CAUSES OF

In regard to the causes of eczema, they are of two kinds : first, the local ; and, second, the general, or predisposing causes. Anything which irritates or inflames the skin can excite eczema in one subject to it ; thus, we see the eruption appearing again and again in many cases, as often as the local irritation is repeated. The list of exciting causes is, of course, as great as the number of articles or conditions which might irritate or inflame the skin.

ECZEMA, DIET IN

With reference to diet in eczema, or salt rheum, the most common of all skin diseases, attention must first be directed to the errors which may be constantly observed in those suffering from it during infant life. In infants at the breast, too frequent feeding, we believe, is a common cause of this and other diseases. Especially is it customary for the mother to give the child the breast every time it cries, or is restless with the itching, and this generally but aggravates the already existing digestive disorder. The times of feeding should be regulated and the breast not given oftener than every two hours, or longer. But, again, the times of feeding may be correct and the error be in the quality of milk, from a faulty diet in the mother. It is very generally found that mothers with eczematous children at the breast are in the habit of taking daily a larger or smaller quantity of ale, beer, porter, or wine, or else a large quantity of tea. Dyspepsia in the mother will very often cause eczema in her nursing child. Sometimes the milk is too poor and the mother needs attention, while the mother and child may both require the addition of cod-liver oil. When the child with eczema passes beyond the nourishment of the breast, great care is required that its diet be correct. It is hardly necessary to allude to the impropriety of giving young children "a little of all that's going," as is daily done among the poor and sometimes even among the educated classes. Even children at the breast are often fed from the table with the food of adults; especially do they often get a little tea and coffee, of which children are universally fond. These should, of course, be interdicted and children encouraged to take milk freely. It is an error in the diet of these little patients with eczema to overload the stomach with pure starch compounds, as rice, farina, etc. It is better to give them such food as thoroughly cooked wheat, oatmeal, etc. In some cases, however, oatmeal does not seem to be well borne by patients with skin diseases; there is some truth in the popular idea that "oatmeal is heating." Most eczema patients, both children and adults, avoid or dislike fat; and this is an error which requires attention. Cod-liver oil is constantly given with the best effect in this disease and other oily matter is quite as beneficial. Patients with eczema and other skin diseases should take a reasonable quantity of fat at all times, such as the fat of beef, mutton, etc., always, however, short of producing any derangement of the stomach, or biliousness. But the fat must not be taken in the form of fried things. In order to consume properly this extra quantity of fat, more exercise in the open air is necessary.

ECZEMA, TREATMENT OF

The treatment of eczema is so varied, according to the patient, the location of the eruption, its stage and condition, that no rules can possibly be given for its home management. Indeed, it should always be treated medically and certainly never by quack medicines. There are, however, certain elements which may with advantage be attended to by the patient, who can thus aid greatly in his treatment. Diet and hygiene are all-important. Much difference in the progress of the case may be made by the manner in which the applications directed are used. As a rule, ointments act much better when spread on muslin or lint and laid on the part, than when spread on the diseased surface, however carefully this may be done. Most ointments should be used freely, spread on linen or lint as thick as the back of a table-knife, and then laid upon the part and made to fit closely to it. Where the surface is at all curved or irregular in outline, it is far better to spread a number of strips and lay them on, partly overlapping each other. In treating the hand, it is very common for patients to rub on the ointment and then draw on a glove. This is a poor way, indeed, as the glove generally takes off much of the ointment and the results are by no means as good as when the above plan is followed. Much may be accomplished, frequently, in the way of preventive measures in eczema. A large share of the eruption in this disease is due to the scratching which results from the intense itching peculiar to the disease. This itching will frequently be very troublesome before much or anything is seen on the surface. If, therefore, by the mental control of older persons, or by physical restraint of children, we can assist in preventing the development or increase of the disease, we can also help much in the medical treatment of the case. The irritating action of certain articles of clothing must ever be borne in mind. Thus, woollen clothing must never be allowed in contact with eczematous skin ; and when flannels are first put on in the autumn, they not unfrequently give rise to much irritation. The poisonous effects of certain dyes must not be forgotten, as cases are continually presenting themselves where coloured socks have been the starting-point of eczema. Instances are also on record where gloves, coloured shirts, etc., have caused artificial eruptions which may pass into eczema and we have seen eruptions produced by black crape when it touched the skin and also by a hat lining. The first rule in the local treatment of eczema is the avoidance of baths of every kind. The affected part should neither be washed nor bathed, even with an antiseptic lotion. Assuming the eczema to be in the moist stage it should be kept well powdered several times a day with rice powder to which five per cent. of boracic acid has been added. In a few days the eczema will probably be brought to the dry stage. The skin should then be treated with one of the following ointments: boric acid, twenty grains ; vaseline, two ounces ; or zinc oxide, six drachms ; starch, two drachms ; vaseline, one and a half ounces. One of these ointments should be applied three times a day, and covered with gauze. As soon as the inflammation has subsided the affected part should be painted four or five times a day with the following liquid : oxide of zinc, five drachms ; starch, five drachms ; glycerine, two drachms ; water to three ounces. This liquid dries in a few minutes after application. At this stage should there be much irritation a tarry preparation may be employed. A useful formula is the following : liq. carbonic detergens, two drachms ; oxide of zinc, five drachms ; glycerine, seven and a half drachms ; water, three ounces. In eczema of the scalp yellow oxide of mercury ointment is perhaps the most generally useful application.

EGG EMULSION

See EMULSIONS.

ELECTUARIES

The name electuary is changed now to that of confection. These preparations are of long standing. They consist of mixtures of vegetable substances and light earthy powders, which are more agreeable given in this form than in mixtures and are made into masses by means of honey, syrup, mucilage, etc.

Confection of Senna.—This preparation consists of senna, coriander, tamarinds, figs, prunes, cassia pulp, extract of liquorice, sugar and distilled water. It may be given in doses varying from a teaspoonful to a tablespoonful. It acts as a somewhat stimulating purgative, operating chiefly upon the small intestine. It is useful in constipation. When given alone, senna is apt to produce a good deal of griping, but when mixed with carminatives, as in this case, the griping is removed. It must not be given in cases of threatened miscarriage or in menorrhagia.

Confection of Sulphur.—Take of sublimated sulphur, two ounces; cream of tartar, half an ounce; syrup of orange peel, two ounces; from a teaspoonful to a dessert-spoonful may be taken every morning. It has a gentle laxative effect upon the bowels and rarely fails to give relief in cases of piles.

EMBROCATIONS AND LINIMENTS

These preparations have the consistence of oil. They are more active than ointments and act as local stimulants, relieving deep-seated pain and inflammation.

Chilblain Liniment.—Take an ounce of camphorated spirits of wine; half an ounce of solution of subacetate of lead, or Goulard's extract. Mix and apply three or four times a day.

Embrocation for Sprains and Bruises.—Take half an ounce of laudanum and mix it with an ounce and a half of compound liniment of camphor. When the more active symptoms have passed away, this forms a useful application for relieving pain. It is also useful in pains of a rheumatic character.

Liniment for Bruises when there is Inflammation.—Take of solution of acetate of ammonia and soap liniment, of each an ounce; mix. May be applied frequently when the bruised part is inflamed.

Liniment for Rheumatism.—Take half an ounce of belladonna liniment and an ounce and a half of liniment of opium; mix. This is a soothing application in sprains and affections of a rheumatic or neuralgic nature.

Liniment for Whooping Cough.—Take of belladonna liniment, two drachms; soap liniment, or opodeldoc, one ounce and six drachms; mix. May be rubbed, night and morning, into the spine of a child five years old suffering from whooping cough.

Roche's Embrocation.—Take of olive-oil four ounces, oil of amber two ounces, oil of cloves sufficient to scent it strongly; mix. When rubbed on the chest it acts as a gentle stimulant to the skin and may be rubbed over the spine in cases of whooping cough.

Stimulating Liniment.—Take of compound liniment of camphor and soap liniment, or opodeldoc, of each an ounce; mix. This is a useful outward application in cases of ordinary sore throat. A piece of flannel warmed at the fire should be put on after the rubbing is completed.

Strong Stimulating Liniment.—Take of strong liniment of ammonia, an ounce and a half, oil of turpentine, half an ounce; mix. This is an excellent rubefacient liniment, and is useful in chronic rheumatic affections.

EMETIC MIXTURE

See MIXTURES.

EMETICS

(Greek, **emetikos**, "that which causes vomiting"; from **emeo**, "I vomit").

Emetics are medicines or other agents (sometimes purely mechanical) to produce vomiting; the simplest and, in many cases, the most effectual, being a tickling of the back of the throat, especially at the part called the soft palate, with a feather. In medicine several classes of emetics are used; some cause sickness and faintness; some by irritating the stomach cause it to get rid of its contents without any great degree of faintness, such as accompanies the other. Vomiting is a complex act the result partly of the contraction of the powerful muscles constituting the walls of the belly, partly of contraction of the muscular walls of the stomach itself; that is to say, of the cavity into which the food is received. Of ordinary emetics, ipecacuanha is that most frequently employed; antimony is also used in the form of antimonial wine or tartar emetic, the latter in small doses. These remedies cause much sickness and prostration and consequently are used chiefly in cases where it is desirable that such a condition should be induced for the arrest or suppression of certain diseases. Thus, in the case of children attacked with croup, an emetic of this class is of the greatest possible value, especially if accompanied with a warm bath and fostered with lukewarm drinks. Then, again, it must never be forgotten that little children, especially infants, if attacked with cold, cough and thereby expel from their lungs the matter which has collected there; but this in all probability only reaches the air-tubes and gets no farther. They cannot expectorate and so the tendency is to accumulate phlegm in the chest; hence the rattling noises heard when they have colds. Now, it is of vital importance to get rid of this substance and of all remedies an emetic is the most efficient. Ipecacuanha wine had best be used and that may be given in repeated teaspoonful doses until the child is sick and the whole is brought up. This may seem harsh practice, but in the end it is safest. In poisoning, by whatever agent, it is of vital importance to get it expelled from the stomach and for this purpose common salt, mustard, or smelling salts may be given in the respective doses of a handful of salt, a tablespoonful of mustard, or a teaspoonful of smelling salts, all freely diluted with water, to be followed up with copious draughts of lukewarm water. These are especially useful in poisoning with opium or other narcotic agents. For this purpose, too, sulphate of zinc (white vitriol) and sulphate of copper (blue vitriol) are particularly well adapted, but, as a rule, less readily attainable. Sulphate of zinc is a very safe emetic, emptying the stomach without giving rise to much nausea. Perhaps the best is a combination of this with ipecacuanha—15 grains of sulphate of zinc and 5 of ipecacuanha, given, as usual, with much lukewarm water. There are many cases in which a person has partaken of indigestible or unsuitable food and an emetic, by getting rid of it, does great good; as, during the process of vomiting, the liver and gall-bladder are compressed and bile finds its way back into the stomach, thence to be expelled by the mouth. An emetic is often one of the very best plans for getting rid of an accumulation of bile in the liver or its appendages. The process of vomiting commonly also causes a certain amount of perspiration.

An Emetic.—Take a teaspoonful of the finest mustard, mix it in a tumblerful of warm water and administer to the patient. This is a safe emetic and should be at once administered when any poisonous substance has been swallowed.

Another Emetic.—A teaspoonful of ipecacuanha wine, to be repeated in ten minutes if required. This is a favourite remedy in cases of croup. It is also given to children in cases of bronchitis when there is difficulty of expectoration.

Another Emetic.—Twenty grains of sulphate of zinc, followed by copious draughts of tepid water. This emetic is of a stimulating character ; it is prompt in its action and safe. It is very useful in cases of narcotic poisoning, as when an overdose of laudanum has been taken. It causes little after-depression.

EMULSIONS

(Latin, **emulsum,** " to milk out " ; from **emulgeo,** " I milk from ").

Emulsions are mixtures of bland mucilaginous substances with water and are used to allay irritation in the lungs, alimentary canal and other parts, and likewise as vehicles for certain substances which could not otherwise be so conveniently taken in a liquid form.

Cough Emulsion.—Take of gum ammoniac, two drachms ; water, half a pint. Rub the ammoniac well, gradually adding the water, until they are thoroughly mixed and then strain through linen. This emulsion forms a useful expectorant in old coughs and asthma when no inflammatory symptoms are present. The dose is from one to two tablespoonfuls united with an equal quantity of almond emulsion.

Egg Emulsion.—Rub the yolk of two eggs and a little sugar with a pint of cold water, adding to it afterwards a glass of Rhenish or other light foreign wine and a little lemon juice to give it a flavour. This forms a very nourishing restorative drink of great benefit in cases of debility and when a patient is recovering from an attack of some severe disease where mild stimulation is required. Without the wine the emulsion is a good remedy in cough, hoarseness, spitting of blood and constipation.

Emulsion of Gum Arabic.—Take of gum arabic in powder, two drachms ; blanched sweet almonds, and white sugar, of each half an ounce ; barley water, warm, a pint ; dissolve the gum in the warm barley water and, when it is almost cold, pour it gradually upon the almonds, previously beaten to powder with the sugar, rubbing them at the same time, so as to form a milky mixture ; then strain. This is a useful demulcent in common colds, difficulty in passing water and general irritation about the urinary organs, and is a pleasant vehicle for the exhibition of more active remedies in these and other complaints.

ENAMEL

The enamel is the cap or covering of the crown of the tooth. It is the hardest tissue of the body. It is thickest on the cutting edges and masticating surfaces, gradually becoming thinner towards the neck, at which point it is met or slightly overlapped by the cementum. The enamel is possessed of very slight, if any, sensibility. It contains not more than four per cent. of animal matter and is almost entirely soluble in acids. Under the microscope it is found to consist of parallel fibres or rods lying side by side—generally hexagonal, but some nearly circular and others nearly square.

ENEMA

(Greek, en, "in"; iemi, "I throw").

When food or medicine is introduced in a fluid form into the lower bowel, it is termed an enema, or, in older phraseology, a clyster. The best way to give an enema is to place the patient on his left side, so near the edge of the bed that part of his body may project over it. The pillow must be removed to keep his head low—the head lying towards the centre of the bed—and in order to give proper height to the hips the pillow should be doubled and laid beneath them, the object being to enable the liquid to pass up into the bowel by its own weight and also to be retained as long as possible. A waterproof sheet should be placed over all the bedding and other materials on which the patient is lying. The nozzle of the Higginson's syringe (the best type to use), which should not be more than three inches long, should be anointed with vaseline and inserted very gently into the bowel and the soap and water (or other enema) slowly admitted. Should the water return too soon, the buttocks must be pressed together round the nozzle. When the enema has been introduced the patient must remain quiet and make no effort at expulsion, leaving this entirely to the action of the enema. As there will be a natural inclination to expel, the patient must be cautioned to try to retain the enema so that it may act for itself. If a nurse is not in attendance and there be any doubt as to how the enema should be administered, the safest plan will be to ask the doctor to give it. An enema may be employed with advantage in cases of prolonged constipation, when it is better and easier to act upon the hardened mass from below than from above. Many substances may be employed, but there is none better than plain soap and water. If this does not succeed, half an ounce of castor oil and half an ounce of turpentine may be beaten up with an egg and a pint of hot water added. In making use of enemata for this purpose, not less than a pint should be used; for the normal stimulus to the bowel to act is distension. If, on the other hand, it is desired that the enema should be retained instead of being expelled, the smaller the quantity used the better. This is the case when from disease of the stomach it is impossible or unadvisable to give food that way, and small quantities of beef-tea, etc., may be thrown up the bowel. Then not more than a couple of ounces should be used at a time. This too is the case when opium enemata are prescribed as they sometimes are for disease of the lower bowel or neighbourhood. Enemata, we have stated, are given either to relieve or control the bowels, or for the purpose of nourishing a patient not able to take food by the mouth. For the first purpose, from one to two pints of liquid may be used; warm soapsuds, with castor oil or sweet oil, in such proportions as the doctor may order; or, where diarrhœa is to be controlled, less fluid, probably thin starch mixed with cold water, and some astringent or opiate, as thirty drops of laudanum; in all cases the doctor's directions must be asked and followed. For nourishment, various things may be given: beef-tea, milk and brandy, strong soups, beef-juice and brandy, etc., as prescribed; but for nourishing enemata not more than four to eight ounces should be given. More than this may simply irritate and not be retained: therefore at times it may not be expedient to administer more than two ounces. The fluid must be retained as long as possible and no effort made to discharge it.

Oil Enema.—Either sweet or castor oil given clear, six to eight ounces.

Salt Enema.—Give one ounce and a half of salt in one pint of gruel, warmed.

ENTERIC FEVER

See TYPHOID.

ENTROPIUM

See ECTROPIUM.

EPIDERMIS

The outer layer of the skin, the epidermis, cuticle, or scarf skin, is not composed at all of fibres, but on the contrary, of separate roundish elements called cells. These of course cannot interlace as do the fibres of the corium, but are piled upon each other in layers to a varying extent in different parts of the body. Thus, upon the soles of the feet the epidermis may attain great thickness; also upon the palms, or wherever friction calls for more protection of the soft parts underneath; whereas on the face this layer is very thin. The epidermis, outer, or scarf skin, is also divided into two portions—the outer, in which the scales are all flat, hard, horny and lifeless, only waiting to be thrown off or removed by friction; and a deeper portion, in which the cells are round or many-sided, soft and moist, in fact, growing and developing to replace those removed externally.—*See* RETE MUCOSUM.

EPIGLOTTIS

If the tongue is pulled forcibly forwards, a little curved projection is sometimes seen behind it, at its deepest part. This, the epiglottis, is a valve of gristle, by which the air-passage is covered over during the movement of swallowing, to prevent the food or drink from going down the wrong way—*i.e.*, into the larynx instead of the gullet. It participates in the movements of the tongue, to the base of which it is attached by a strong ligament. It is also attached by ligaments to the sides of the throat; and when these ligaments are very tense, their edges present to the finger the sensation of a thin and firm foreign body, such as a pin or fish-bone, and are even liable to be mistaken for the intruder in cases in which such foreign bodies have been swallowed and be thus ruthlessly pulled by those who are not aware of this circumstance.

EPILEPSY

(Greek, **epi,** "upon"; **lambano,** "I take").

This disease, sometimes called "falling fits," consists of paroxysms of convulsion, returning at uncertain periods, accompanied by an abolition of sense and voluntary motion and ending in somnolency or complete sleep. It frequently occurs in infancy and early childhood; when the patient survives the first attack, it sometimes becomes habitual or constitutional throughout even a long life. The peculiarities of an epileptic fit are strong, general convulsions, coming on suddenly, sometimes with a violent scream, always with immediate loss of consciousness; sometimes, however, preceded by a momentary warning either of giddiness, or local pain, or slight partial convulsions. The patient usually foams at the mouth and the froth is often bloody from the accidental biting of the tongue or lips during the convulsive closing of the teeth. The eyeballs protrude and are frightfully distorted ; the whole countenance is generally turgid and livid. The convulsions and distortions, after a longer or shorter period, subside, consciousness slowly returns, and a state of drowsiness, stupor and sometimes of sound sleep succeeds, lasting, in a greater or less degree, for many hours. The epileptic fit may, however, be of every degree of violence, from a momentary loss of consciousness and the slightest possible convulsions, with so sudden a recovery that the patient himself is scarcely conscious of its occurrence, to that appalling degree of universal spasm and distortion and temporary annihilation of intellect, which seems to threaten instant destruction ; and one such paroxysm may last for hours, or one of much shorter duration may be quickly succeeded by others for many hours together. " On the eve of a fit," remarked Dr. Radcliffe, " confirmed epileptics are noticed to sit or move about in a moping and listless manner ; to complain of chills and shiverings, or of faintness and sickness. The respiration is interrupted by frequent sighs ; the pulse is weak, irregular and slow. Occasionally there are headaches, dazzling of the eyes, singing in the ears and other excitements of sensation ; slight flushing of the face, dilatation of the pupils and extreme irritability of temper. In some rare instances there is, immediately before, or at the beginning of the attack, a phenomenon of a more specific nature." Dr. Beddoes was acquainted with a gentleman who, before an attack of epilepsy, misplaced his words in a curious way. He was always making blunders of the sort in his letters and, when talking he used to substitute one word for another, bearing, however, some resemblance in sense as well as in sound. For instance, he would say, " Everybody feels very languid this wet weather—I mean this hot weather " ; or, " Come, who will sit down to supper ? There's only cold meat and pudding—I mean pie."

EPILEPSY, CAUSES OF

The most frequent causes are irritation in the stomach and intestines ; a diseased state of the spinal marrow ; sudden fright ; excessive grief ; great loss of blood ; the suppression of accustomed discharges, or of cutaneous eruptions ; the action of mineral poisons ; excess in drinking and the imprudent use of calomel.

EPILEPSY, DIET IN

The diet of an epileptic patient should be plain, light and nutritious; meat in moderation once a day, but not savoury or highly seasoned, milk, or milk porridge night and morning ; no beer, wine, or spirits.

EPILEPSY, TREATMENT OF

When an attack comes on, put the patient in the middle of a bed, so that he may be less liable to roll off ; or, if he cannot be moved, let him lie on the floor ; raise the head ; unfasten all the clothing; put a handkerchief, made into a small, tight roll, between the teeth, to prevent the tongue from being bitten ; put cloths dipped in cold water on the head and forehead and hot-water bottles to the feet, if they are cold. Keep the room darkened and quiet. After the first few attacks, for which you have called in a physician, you will understand what to do in the repeated seizures. Children or grown persons liable to the disease should live simply ; avoid all heating exercise, or going up and down stairs, or doing anything that may create dizziness. They should spend as much time as possible in the open air and as little as possible over books and business ; take a daily cold sponge-bath, with brisk rubbing afterwards ; eat easily digested and nourishing food slowly and avoid bodily and mental fatigue. A great deal of moderate exercise in the open air, with moderately warm clothing, is desirable ; heated and crowded rooms are to be avoided. The patient should sleep in an airy room, with his head and shoulders elevated, and without a night-cap ; and he should daily souse or well wash his head with cold water in the summer and with tepid water in the winter, taking care to rub it thoroughly dry with a coarse towel ; and he should wear a light cap or hat. He ought also to pay as much attention to the keeping of his feet warm, both by day and night, as to the keeping of his head cool. The only drug which seems to have any effect on epilepsy is bromide of potash.

EPSOM SALTS

See Medicines, Home.

ERUPTIONS, LOCALITY OF

The locality of all eruptions is on the true skin, immediately under that epidermis which forms the covering of many eruptions on the skin, as in the water-blisters of "cold sores," shingles and chicken-pox. It is also raised in little vesicles, or water-blisters, in eczema ; and later in this disease the epidermis is largely removed and we have a surface which is raw and bleeding, but which, however sore, always heals without a scar, because only the epidermal layer is destroyed.

ERYSIPELAS

(Greek, **eruthros,** "red" ; **pella,** "skin").

Under the name of this disease, which is also known as St. Anthony's Fire, may be classed several varieties of eruption commonly known under this term, though distinguished, and very properly so, in systematic works. They are often placed among skin diseases, but are too clearly attacks of a constitutional nature to be omitted from the class of fevers—though one of their essential characteristics is an inflammation of the skin.

ERYSIPELAS, SYMPTOMS OF

Erysipelas is always, unless in very slight cases, ushered in by one or two days of mild fever and disordered stomach ; and some persons are so much more subject to the complaint than others, that they seldom pass through a spring and summer without a spontaneous attack. In many persons, too, the disposition is so strong that the bite or sting of insects (and more particularly the bite of leeches) is uniformly followed by erysipelas in the part, extending sometimes over the whole face or over a limb, running its usual course of many days. In the milder form, the eruption consists of one or more red patches, sometimes oval or circular, sometimes irregular in their circumference, frequently smooth throughout, at other times with a hard, elevated border, or with a rough and papulated surface. These patches appear indiscriminately on the face, trunk, or extremities ; the oval patches, with hard elevated border, being most frequent on the front of the legs. The duration of the redness and swelling is from two or three days to many weeks, when both gradually subside and a slight desquamation of the cuticle follows. Erysipelas in a severer form is marked with more general constitutional disturbance ; the sensation of burning heat in the part is more intense ; there is considerable tumefaction ; and, when the face is the part attacked (which is the most usual seat of these severe cases), the eyelids are so swollen as to be entirely closed. The eruption usually appears at the end of the second day of the fever and, in two or three more days, there are numerous small, or a few large, blebs or blisters on the inflamed surface, which burst and desiccate on the second or third day after their appearance. In another variety the surface is perceived to be slightly rough on the first or second day and, instead of vesicles or blebs, numerous small pustules cover it on the third or fourth day, which discharge a thin acrid matter, forming a yellowish scab or crust, which does not fall off for at least ten days or a fortnight.

ERYSIPELAS, TREATMENT OF

The treatment is an aperient, as magnesia and Epsom salts, once a day ; a mild, cooling diet ; rest when the patches are on the legs, and a weak lotion of Goulard applied frequently to the part, cold in summer, but warm in winter ; or, what is a better criterion, of that degree of temperature which is most agreeable to the feelings of the patient. The treatment in the severer forms of the disease must vary according to the intensity of the constitutional symptoms ; but it is as well to say that, when the face or scalp is pretty extensively inflamed, very formidable, alarming and even dangerous symptoms sometimes arise, such as delirium, with a rapid pulse and high fever : and all such cases require, of course, the aid of the most skilful practitioner. Erysipelas is contagious and its spread must be guarded against by ventilation and strict cleanliness.

ERYSIPELAS, WILSON ON THE DOMESTIC MANAGEMENT OF

"In the domestic management of St. Anthony's fire," says Sir Erasmus Wilson, "every disturbing cause, such as noise, conversation, bad news, heated temperature, cramming with nice broths and jellies, should be avoided and the injunctions of the medical man scrupulously carried out. The disease is always serious and its consequences are doubtful ; it is often dangerous, often attended with delirium, and by no means a case to try Mrs. A's or good Mrs. B's advice upon ; in other words, it must not be tampered with. Officious kindness in the sick room is highly dangerous; deeds are wanted there, not words. The real wants of the patient should be anticipated, but no imaginary want created. The inflamed part should always be raised into an easy position, and one which will facilitate the current of the blood to the heart, and the prescription of the medical man carefully followed.

Sometimes he may prescribe a cold lotion, in which case a layer of thinnest linen wetted in the lotion, but not so much as to drip and make the bed wet and uncomfortable, should be gently laid upon the part and replaced by a second as soon as the first loses its moisture. Three of these pieces of linen should be in use at the same time—one on, one in the basin containing the lotion, and the third hanging on a string to cool, previously to taking the place of the second. No other covering should be placed upon this, as the object is to encourage evaporation as much as possible."

ERYSIPELAS, SURGICAL

In the great majority of cases of erysipelas and especially of the more severe forms, the disease has its starting-point in a wound, open sore, or large ulcer on the surface of the body.

ERYSIPELAS, SURGICAL, SYMPTOMS OF

Given a recent contused or lacerated wound on the scalp or the skin of the leg, in a badly nourished and debilitated person, living in faulty hygienic conditions, erysipelas will probably show itself under one of the two following forms :—Simple or cutaneous erysipelas, resembling in all respects the affection which frequently attacks the face in the absence of any wound or local irritation. In some cases of contused wound of the scalp, the redness, swelling and blistering of the skin of the face are associated with much pain and tenderness over the whole of the head and a hard, brawny condition of the scalp. The patient, after an attack of intense shivering, becomes very hot and feverish and often loses his senses and raves violently. The tongue becomes brown and the pulse very rapid. In the course of thirty-six or forty-eight hours the condition of the scalp undergoes a change ; it is no longer hard and tense, but very puffy and raised from the surface of the skull by a collection of fluid which subsequently, if not let out by the surgeon, breaks through at one or more points and shows itself as thick yellow pus or matter. Occasionally, considerable portions of skin are destroyed and bone is very often laid bare. If the patient should survive the acute stage of this dangerous affection, the erysipelatous redness and swelling disappear, the fever and delirium subside and the sloughing wounds on the head are replaced by ruddy ulcers, which heal rapidly as the general health improves. In many cases, however, death occurs.

ERYSIPELAS, SURGICAL, TREATMENT OF

In the treatment of the wounded great care should be taken to remove all sources of foul and unwholesome exhalations and to keep up a constantly renewed supply of fresh air. Unremitting attention should also be paid to the cleanliness of the patient and everything about him. The night-linen ought to be frequently changed and not allowed to remain when soiled by discharge. The motions should be at once removed and a solution of carbolic acid, chloride of lime, or some other antiseptic, be poured into the bed-pan. The wound, or raw surface, should not be wiped with a sponge, but with tow or cotton-wool, which must immediately be thrown away or destroyed. The patient's bedroom should be emptied of all but indispensable articles of furniture and bed-curtains at once removed. The treatment of this form of erysipelas and diffuse cellular inflammation consists in supporting the strength of the patient by alcoholic stimulants and tonics, the most effectual of which are quinine and the tincture of perchloride of iron. The bowels should be freely relieved from time to time. Bleeding and the application of leeches are now but rarely resorted to and then only in cases of threatening inflammation of the brain in strong and full-blooded patients. Ammonia is a valuable medicinal agent in bad cases of diffuse cellular inflammation from snake-bites and animal poisoning. In the local treatment of the severe forms of erysipelas, various agents have been used. Of these, perchloride of iron, sulphate of iron, tincture of iodine and nitrate of silver, or lunar caustic, have proved the most useful. In the absence of surgical aid, the simplest and best local treatment would be the application, around the inflamed parts, of flannels dipped into boiling water and then well wrung; or of linseed-meal poultices, to which, when there is a profuse and ill-smelling discharge of pus, charcoal, carbolic acid powder, or chloralum should be added.

ERYTHEMA

(Greek, **eruthaino,** "I make red").

This is a redness or congestion of the skin. It characterizes the early stages of other affections produced by irritating causes. It appears as a non-elevated rash, red in colour, either diffuse, or else in small circumscribed spots or patches. It may be due to external causes; but is frequently due to constitutional disturbances, particularly to acute indigestion in children. It tends rapidly to disappear upon the removal of the cause and is in itself devoid of importance. These suddenly appearing, diffuse, often scarlet rashes assume occasionally great importance, from the fact that they sometimes simulate and are occasionally mistaken for the eruptions of more serious diseases. A child three years old, previously well, was seized during the night with vomiting and complained of sore throat. Intense fever followed. At daybreak, the whole surface of his body was covered with a bright scarlet eruption. His parents were greatly alarmed and the fact that they were living in a crowded watering-place hotel added to their consternation, as they were convinced that their youngster had scarlet-fever. The fever subsided, however, within a few hours; the rash vanished as abruptly as it had appeared and the next day the boy was as well as ever. It was a case of erythema associated with indigestion from improper diet.

ERYTHEMA, TREATMENT OF

The various forms of erythema are more or less associated with a rheumatic habit or condition of body; and very frequently there will be considerable joint-pain with them. They are generally due to indiscretions of diet and to the effects of cold in checking the secretion of the skin. The treatment is generally laxative and cooling. But little need be done

STRUCTURE OF THE SKIN AND HAIR.

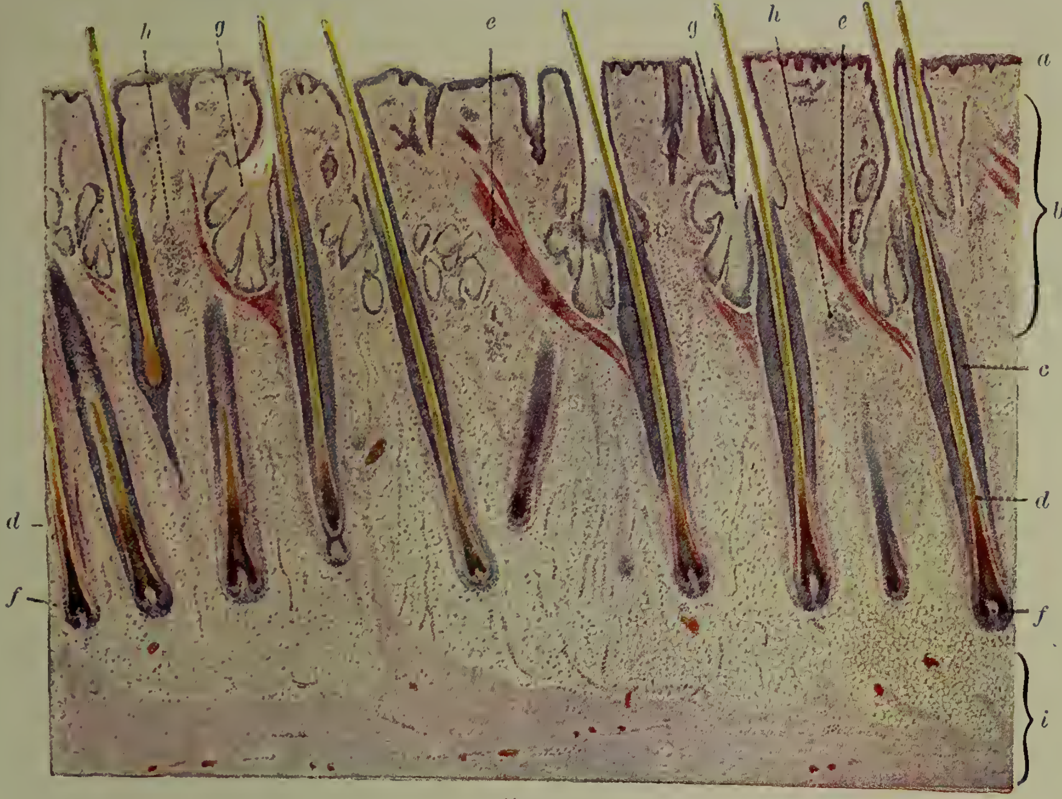


FIG. 1.

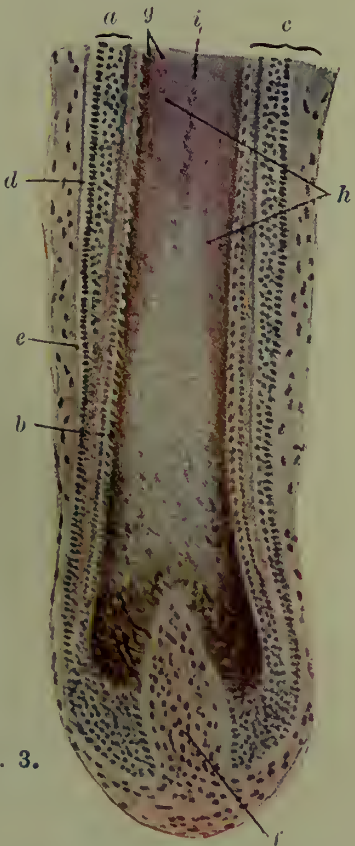


FIG. 3.

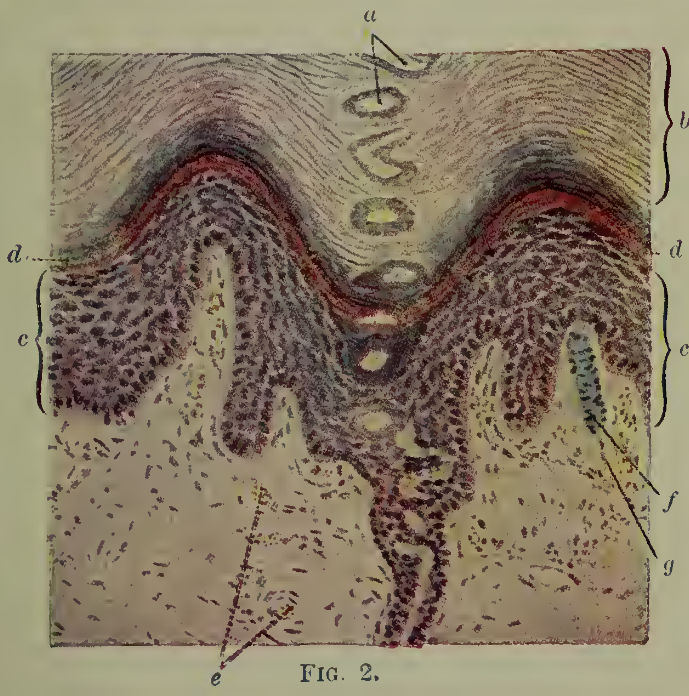


FIG. 2.

FIG. 1.—Section of the Skin of the Head. *a*, epidermis ; *b*, corium (the true skin) ; *c*, hair follicle or sheath ; *d*, hair root ; *e*, erector muscle of the hair ; *f*, bulb of hair ; *g*, fat glands ; *h*, sweat glands ; *i*, subcutaneous cells. FIG. 2.—Section of the Skin of the Palm. *a*, sweat glands ; *b*, horny layer ; *c*, papillary processes ; *d*, fibrous tissue ; *e*, blood vessels and corpuscles ; *f*, organs of touch ; *g*, nerve. FIG. 3.—Section of Hair Bulb. *a*, outer sheath ; *b*, cortex ; *c*, follicle ; *d*, epidermic cells ; *e*, inner sheath ; *f*, bulb ; *g*, pigment cells ; *h*, shaft ; *i*, axis, containing cells loaded with pigment.

locally; a little wash of bicarbonate of soda, or lead and opium, will often prove very grateful.

ESSENTIAL FEVER

See Fever, Characteristics of.

EUSTACHIAN TUBE

(From the name of its discoverer, **Eustachi**, or **Eustachius**, who died at Rome in 1574).

The Eustachian tube is the only normal aërial communication between the throat and the drum cavity. It opens into the upper and back part of the throat, in that part of the latter called the pharynx, a little above the floor of the nostrils. It passes upwards, outwards, and backwards to the cavity of the drum, forming an angle of 40° with the horizon and an angle of 135° with the external auditory canal. The mouth of the tube in the pharynx is wide, but from this point the tube narrows rapidly to what is called the isthmus, from which it widens again to form the tympanic mouth. The entire length of the Eustachian tube is a little more than one inch. The mouth of it, in the pharynx, is about $\frac{3}{8}$ of an inch high and $\frac{3}{16}$ of an inch in width, the isthmus is $\frac{1}{16}$ of an inch in width, and the tympanic mouth is $\frac{3}{16}$ of an inch in height and about $\frac{2}{16}$ of an inch wide. About two-thirds of the tube is cartilaginous, the other third being of bone. A cross-section of the bony portion would be circular in outline, while a cross-section of the cartilaginous portion would resemble a shepherd's crook. This crook-shaped wall of cartilage is really the posterior and upper wall of the tube, the anterior and lower wall or side of the tube being composed of a membranous tissue to which muscles are fastened. It is the action of these muscles which opens the tube by drawing the front wall away from the back wall. The calibre of this tube is a linear one and not circular, as in the bony portion. It is an offshoot of these muscles which forms the stretcher muscle of the drum (tensor tympani).

EUSTACHIAN TUBE, DISEASES OF THE

The diseases of the Eustachian tube amount to diseases of the ear. A cold in the head, or a sore throat, may, at any time, affect the Eustachian tubes, as they are lined with the same mucous membrane and are of course very close together. It is the simultaneous affection of the Eustachian tube in an ordinary cold in the head that gives the stuffed feeling and alteration of sounds in the ear. This stuffed feeling should not be neglected if it does not pass off in a few days. Should it continue, it will show that more than ordinary swelling has occurred in the tube and it will be found that the hearing is slightly impaired. Usually as the cold passes off, this peculiar feeling in the ear or ears passes away. If this does not take place and the tube be allowed to remain closed up, with the consequent stopped feeling in the ear, the tube will fall into a chronic state of inactivity and inability to open itself at every act of swallowing. The stoppage of the Eustachian tube, especially in little children, is one of the most fruitful sources of earache and deafness. Professional advice should at once be taken.

EVAPORATING LOTION

See LOTIONS.

EXAMINATION PRIOR TO LABOUR

See LABOUR, PREPARATIONS FOR.

EXERCISE, PASSIVE, FOR INVALIDS

The method of passive exercise, or massage, is described by Dr. Weir Mitchell in *Fat and Blood: and How to Make Them*:—

"An hour is chosen midway between two meals, and the patient lying in bed, the manipulator starts at the feet and gently but firmly pinches out the skin, rolling it lightly between his fingers and going carefully over the whole foot; then the toes are bent and moved about in every direction, and next with the thumb and fingers the little muscles of the foot are kneaded and pinched more largely and the inter-osseous groups worked at with the finger-tips between the bones. At last the whole tissues of the foot are seized with both hands and somewhat firmly rolled about. Next, the ankles are dealt with in like fashion, all the crevices between the articulating bones being sought out and kneaded, while the joint is put in every possible position. The leg is next treated, first by grasping the areolar tissue, and last by industrious and deeper pinching of the larger muscular masses, which for this purpose are put in a position of the utmost relaxation. The grasp of the muscles is momentary and for the large muscles of the calf and thigh both hands act, the one contracting as the other loosens its grip. In treating the firm muscles in front of the leg, the fingers are made to roll the muscles under the cushion of the finger-tips. At brief intervals the manipulator seizes the limb in both hands and lightly runs the grasp upwards, so as to favour the flow of the venous blood-currents, and then returns to the kneading of the muscles. The same process is carried on in every part of the body, and special care is given to the muscles of the loins and spine, while usually the face is not touched. The belly is first treated by pinching the skin, then by deeply grasping, and rolling the muscular walls in the hands, and at last the whole belly is kneaded with the palm of the hand in a succession of rapid, deep movements, passing around in the direction of the colon. It depends very much on the strength, endurance and practice of the manipulator how much good is done by these manœuvres. At first, or for a few sittings, they are to be very gentle, but by degrees they may be made more rough and, if the manipulator be a good one, it is astonishing how much strength may be used without hurting the patient. The early treatment should last half an hour and be increased by degrees to an hour, after which should follow an hour of absolute rest. The patient should be at once wrapped up as soon as manipulated. After the first few days keep the patient constantly lubricated with cocoa oil. Vaseline is also a good lubricant."

EXERCISE, RIGHT TIME FOR

The time at which exercise ought to be taken is of some consequence in obtaining from it beneficial results. Those who are in perfect health may engage in it at almost any hour, except immediately after a full meal; but those who are not robust ought to confine their hours of exercise within narrower limits. To a person in full vigour, a good walk in the country before breakfast may be highly beneficial and exhilarating ; while to an invalid or delicate person it will prove more detrimental than useful and induce a sense of weariness which will spoil the pleasure of the whole day. Many are deceived by the poetical praises of the freshness of morning and hurt themselves in summer by seeking health in untimely walks. In order to prove beneficial, exercise must be resorted to only when the system is sufficiently vigorous to be able to meet it. This is the case after a lapse of from two to four or five hours after a moderate meal and consequently the forenoon is the best time. If exercise be delayed till some degree of exhaustion from the want of food has occurred, it speedily dissipates instead of increases the strength which remains and impairs rather than promotes digestion. This result is quite natural, for exercise of every kind causes increased action and waste in the organs, and if there be not materials and vigour enough in the general system to keep up that action and supply that waste, nothing but increased debility can reasonably be expected. For the same reason exercise immediately before meals, unless of a very gentle description, is injurious and an interval of rest ought always to intervene. Muscular action causes an afflux of blood and nervous energy to the surface and extremities, and if food be swallowed whenever the activity ceases and before time has been allowed for a different distribution of the vital powers to take place, the stomach is taken at a disadvantage and, from want of the necessary action in its vessels and nerves, is unable to carry on digestion with success. This is very obviously the case where the exercise has been severe or protracted, and the consequence is so well known that it is an invariable rule, in the management of horses, never to feed them immediately after work, but always to allow them an interval of rest proportioned to the previous labour. Therefore, to use the words of Maynwaring : " Eat not until you be fully reduced to that temper and moderate heat as when you began and when the spirits are retired to their proper stations." Even instinct would lead to this conduct, for appetite revives after repose. Active exercise ought to be equally avoided immediately after a heavy meal. In such circumstances the functions of the digestive organs are in the highest state of activity ; and if the muscular system be then called into considerable action, the withdrawal of the vital stimuli of the blood and nervous influence from the stomach to the extremities is sufficient almost to stop the digestive process. This is no supposition but a demonstrated fact ; and accordingly there is a natural and marked aversion from active pursuits after a full meal. In a dog which had hunted for an hour or two directly after eating, digestion was found on dissection to have scarcely begun ; while in another dog fed at the same time and left at home digestion was nearly completed. A mere stroll, which requires no exertion and does not fatigue, will not be injurious before or after eating ; but exercise beyond this extent is at such times hurtful. All therefore, whose object is to improve or to preserve health and whose occupations are within their own control, ought to arrange these so as to observe faithfully this important law, for they will otherwise deprive themselves of most of the benefits resulting from exercise. When we know that we shall be forced to exertion soon after eating, we ought to make a very moderate meal, in order to avoid setting the stomach and muscles at variance with each other and exciting feverish disturbance. It is the custom in many families and schools, apparently for the purpose of saving time, to take young people for a walk about the close of the day, because there is not light enough to do anything in the house. Nothing can be more injudicious than this plan—for in the first place exercise once a day is very insufficient for the young, and, even supposing that it were enough, the air is then more loaded with moisture, colder and proportionably more unhealthy, than at any other time ; and, secondly, the absence of the beneficial stimulus of the solar light diminishes not a little its invigorating influence. For those, consequently, who are so little out of doors as the inmates of boarding-schools and children living in towns, and who are all at the period of growth, the very best times of the day ought to be chosen for exercise, particularly as indoor occupations are, after nightfall, more in accordance with the order of nature.

EXERCISE, SEVERE

Muscular exertion very speedily increases the force and frequency of the heart's pulsations, and the amount of blood flowing through all parts of the body, including the heart itself, in a given space of time, is much augmented. The number of beats of the heart may be altered from about seventy, which is the natural rate, up to ninety, one hundred, or even one hundred and twenty to the minute. After the cessation of exercise, however, the beats fall below the usual number and, if the exertion has been very severe or long-continued, may descend as low as fifty per minute and become intermittent. Going up a steep hill, or even a long staircase, gives rise to a very severe strain upon a fatigued heart and is especially liable to bring on cardiac disease, although this, in fact, may result from any excessive exertion. In these circumstances, actual rupture or bursting of the heart has been known to occur, the person literally dying, in such instances, of that malady so rare in real life, but so terribly fatal to the heroes and heroines of novelists, "a broken heart." Very commonly, however, palpitation, enlargement or disease of the valves of the heart, is brought on by excessive exercise, especially in ascending heights. Severe muscular exertion increases the flow of blood in the small blood-vessels of the skin and causes a profuse discharge of perspiration, which may be even doubled or trebled in amount. During active exertion there is little danger of chill, but immediately afterwards and also during the intervals of rest, the skin should be so warmly protected as to prevent the least feeling of coolness of the surface. For this purpose flannel is by far the best covering.

EXPIRATION

See DIAPHRAGM.

EXTERNAL EAR

The external ear comprises the auricle, that part usually called the ear, the auditory canal and the membrana tympani, or drum-head.

The drum-head is really the partition between the external ear and the middle ear, or drum cavity, and partakes in the structure of each of these portions of the ear.

EYE

In the small space occupied by the eye, the organ of sight, and its appendages, all the anatomical elements of the body are represented, arranged with a delicate adjustment to each other, and an exquisite adaptation of every part to the great object of the whole, that render this little organ one of the wonders of Nature. Each part of the eye and the appendages with which it is surrounded are described under their respective headings.

EYE, DUST IN THE

The most common form of injury to the eye is from particles of dust and small foreign bodies. As the course of the tears is from the gland at the upper and outer part of the ball towards the canal at its inner side, and as the lids are firmly attached to bone at their inner extremities and only loosely to bone at their outer, such particles are usually washed by the flow of tears and moved along by the action of the lids towards the space at the inner angle of the eye, which is called the tear lake. From this we remove them, almost unconsciously, with the end of the finger, or perhaps the handkerchief. Occasionally a cinder or piece of coal, or some other object with projecting points, becomes lodged on the conjunctiva and, as everybody knows from experience, is the cause of most acute pain. A smooth object rarely gives much pain and is almost invariably passed on by the tears and the action of the lids. The process may be assisted by gentle rubbing of the lids, which, however, only makes matters worse when the offending mote has once taken hold. It may be well to suggest that it is a very simple and easy thing to evert the eyelid, and that many hours of really serious suffering may often be saved by it, particularly in travelling. To do this, direct the sufferer to look well downwards, then, taking the lashes of the upper lid between the finger and thumb, stretch the lid downwards and outwards, place the point of a pencil on the upper part of the lid, above the top of the ball and press it downwards while the edge of the lid is raised. The inner surface of the lid is thus exposed and the cinder or other object can be readily removed by touching it with a fold of a handkerchief. When the mote is just within the margin of the lid, it may sometimes be removed by drawing the upper lid well down and pressing it against the skin of the lower lid.

EYE, FOREIGN BODIES IN THE

If the object is under the lower lid, pull the lid down, direct that the eye be turned towards the nose, and remove the particle, rubbing in the same direction with a camel-hair pencil, or a soft rag on the end of the finger. If the object be under the upper lid, lay a pencil or knitting needle across the lid till the object is seen ; remove in the same way. If it adheres to the surface of the eye, as a bit of iron filing may, a physician should be consulted at once.

EYE, GLOBE OF THE

The globe of the eye, as it is usually called, is not exactly spherical, for the clear part of the eye, or cornea, resembles a segment of a lesser circle let into a greater. This clear portion of the eye or cornea, as it is termed, forms the anterior fifth of the globe, and is convex anteriorly, and composed of numerous plates or laminae: it is let into the posterior part of the circle, somewhat like the glass of a watch into the case.

EYE, HUMOURS OF THE

The humours of the eye, are first, the aqueous, or watery, which occupies the anterior chamber and also passes into the posterior. The iris floats in this humour. Immediately behind it we find the crystalline lens, or magnifying lens of the eye. It is a double convex lens and is placed in the axis of vision and in front of the next humour of the eye, which is termed the vitreous or glassy humour ; this last is by far the largest in quantity, filling up nearly the whole of the posterior chamber. It is contained in a number of small cells, enclosed in a capsule termed the hyaloid membrane.

EYE, PARTICLE OF IRON IN THE

When a foreign body has lodged on the firmer tissue of the cornea, its extraction is not so simple a matter and rubbing only presses it in more firmly. The particle is usually driven with some force, as from a hammer or turning lathe, but may be simply blown into the eye and embedded in the cornea by pressing the lid against it. Often a minute piece of iron, that can scarcely be seen without a magnifying glass, will give rise to great pain and intense inflammation. If it is completely bedded, so as not to present any sharp point to scratch the lid in its movement over the cornea, the pain will be comparatively slight, but the resulting inflammation may be severe. A foreign body should always be suspected, if a violent inflammation is set up suddenly without apparent cause, particularly if one eye only is affected. Of course the only remedy is the removal of the offending particle, which should be accomplished without delay, but should not be entrusted to unskilful hands. Specks of iron and steel, however, may often be removed safely and promptly by the use of a strong magnet, which is a useful thing to have at hand in establishments where workmen are liable to such accidents.

EYE, QUICKLIME IN THE

A not uncommon and dangerous form of injury is that from lime splashed into the eye. Quicklime acts as a powerful caustic and often causes complete blindness by destroying the vitality of the cornea. Even when the conjunctiva only is affected, the eye may be seriously disabled by a growing together of the raw surface of lid and ball. The lime should, of course, be instantly washed out as thoroughly as possible with water. Any lime that may remain should be neutralized by bathing with a teaspoonful of vinegar in a glass of water, or be rendered inert by sweet oil ; the latter is equally efficient and more soothing. In case of injury by acid, one part of lime-water to three of water may be used, or the eye may be freely bathed in milk.

EYE, WOUNDS IN THE

Wounds made with pointed instruments, such as scissors or fork, frequently penetrate the cornea and injure the lens, when a cataract is formed ; this in young people is usually absorbed, but in adults may require operation for its removal.

EYEBROWS

The eyebrows are formed of muscle and thick skin, covered with stiff hairs, and resting on a bony ridge above the edge of the orbit. The hairs are arranged somewhat like the straw on a thatched roof and shed the perspiration that trickles down the forehead. Another useful purpose is shown by the way in which they are instantly drawn down when we are suddenly exposed to a dazzling light. They have æsthetic functions, too, as powerful organs of expression. A frown is produced by wrinkling and depressing the brows, while by elevating them we can express incredulity, surprise, or contempt, almost as plainly as by words. The word "supercilious" is derived from *supercilium*, the Latin term for eyebrow. The eyebrows may be considered almost distinctive in man ; the seal has a few stiff hairs and in some birds, as the falcon, they are represented by an arrangement of the feathers above the eye, but even monkeys cannot lay claim to them.

EYELIDS

The eyelids are composed of the skin, under which we find the fibres of the circular muscle which closes the eyelids, and a thin cartilage attached to the orbit by a ligamentous tissue ; its margins are thick, and furnished anteriorly with the eyelashes and posteriorly with mucous follicles. The eyelids are lined internally with a mucous membrane, called the conjunctiva, which is reflected from them over the anterior surface of the eyeball, thus forming a partial covering to it also. This membrane is continued along the lachrymal ducts, or passage for the tears, into the lachrymal sac, placed at the inner corner of the eye and so, by the nasal duct, into the nose. The conjunctiva is kept constantly moist by means of its own secretion and also by the tears which are secreted by the lachrymal gland, which is placed at the upper and outer part of the orbit and above the conjunctiva. The opening between the lids is called the commissure and the apparent size of the eye depends chiefly upon the width of this space. The actual size of the eye varies comparatively little in different individuals, but some eyes appear much larger than others because the lids are more widely opened. When an inflamed eye is kept constantly partially closed from an excessive sensitiveness to light, much anxiety is often caused by the conviction that it is becoming smaller.

EYES, NOTES ON CARE OF THE

The following observations based on the experience of many oculists appeared in the Boston *Journal of Chemistry* :—" For the worker the light should come as much as possible from the left side, that is to say, from the side towards which one turns in working. Daylight is the best ; but direct sunlight and that reflected from mirrors should be avoided. The aspect should be northern and the light should come a little from above. White walls should be avoided ; highly varnished tables and, in workshops, shining articles, like silk, should be protected from the sun's rays. Artificial light is always bad, on account of the heat and the exhalation of carbonic acid. The best is that of lamps furnished with a glass shade. Gas is bad, because of its heat, brilliancy and mobility ; the light of mineral oils is too hot ; that of candles insufficient and flickering. The eye of the workman should avoid the light coming to him directly or diffused through the room. Working immediately after meals is objectionable ; also uninterrupted use of the eyes for long periods of time. One should write on an inclined plane and not keep the head bent down more than is absolutely necessary. Some good authorities commend washing the eyes with cold water ; but the majority of the best oculists advise the use of hot water for the less serious affections of the eye. For tired eyes water hot as can be borne is refreshing and beneficial. If the eyes be fatigued by bad artificial illumination, blue or slightly smoked glasses will be useful and, in order to avoid the lateral rays, they should be large and round. If the irritation of the eyes persist, all work must be abandoned, and an examination made to see if there be any disturbance of refraction, of power of accommodation, or of the mobility of the eyes. Presbyopia, or so-called 'far-sightedness,' supervenes earlier with those who are constantly at work than with other persons and, as soon as it does, convex glasses should be at once resorted to, without which the muscle of accommodation would be fatigued to no purpose. At first they should be used for working in the evening, after the fatigue of the day ; but a long-sighted person should only use spectacles for looking at near objects, not at far ones. Work requiring close application favours the development of myopia, or 'near-sightedness,' precisely in proportion as the conditions of illumination are bad. If the action of those causes continue, the myopia will increase until vision is lost. A slight degree of myopia may be favourable to close work, but, as a general rule, work requiring close application, by the derangement of circulation that it inevitably induces in the eye, is much more injurious to the myopic and is the great cause of the development of myopia and its complications."

EYE-WASHES

These are of several kinds ; some are astringent and some sedative, while others produce a stimulating effect upon the eye. They all require to be used with caution and some of them, such as lead, should not be used when the conjunctiva is abraded, as dimness is apt to result.

Astringent Eye-wash (No. 1).—Take of sulphate of zinc, six grains ; rose-water, four ounces. Make a wash, with which the eye should be bathed three or four times a day. Useful in cases of inflammation of the conjunctiva.

Astringent Eye-wash (No. 2).—Take of dried alum, eight grains ; distilled or rose-water, four ounces. Make a wash and use as in the case of the former.

Astringent Eye-wash (No. 3).—Mix twenty drops of solution of subacetate of lead (*liquor plumbi subacitatis*) with two ounces of distilled or rose-water. To be used in cases of inflamed eyes, when there is no ulceration.

Sedative Eye-wash.—Take of extract of belladonna, eight grains ; distilled water, four ounces. Mix and use in cases of inflammation of the eye, when there is pain and irritation

FACIAL ANGLE

The angle that is formed by two lines, one drawn through the external auditory meatus and the base of the nose, and the other from the most projecting part of the forehead through the incisor edge of the upper jaw. Camper estimated the angle in the European adult at 80°, in the negro at 70°, and in the orang at from 47° to 60°, being greater in the young orang than in the old.

FAINTING, CAUSES OF

The usual causes are fatigue, long fasting, sudden loss of blood, acute pain, overwhelming emotions of the mind and excess in diet. It may arise also from some structural disease of the heart, or the large arteries issuing from it. When the returns are frequent and during the paroxysm, the breathing, though feeble, is anxious and obstructed, the face livid with a tendency to restlessness, and without any ordinary exciting cause, as unusual exertion or emotion being evident, we may with propriety suspect some such lurking mischief.

FAINTING, OR SYNCOPE

(Greek, from **sun,** " together " ; **kop′to,** " I cut off ").

In fainting, the motion of the heart and lungs becomes feeble and imperfect, the sensibility and perception are diminished, the pulse is small and weak, the voice uniformly lost and the face pale. It may occur suddenly and accidentally, ceasing without any tendency to recurrence ; or it may recur at periods more or less regular, with occasional palpitation of the heart during the interval and impeded respiration during the fit.

FAINTING, SYMPTOMS OF

Fainting is easily distinguishable from other fits. Its symptoms are paleness of countenance, pulse and action of the heart very feeble, if not altogether imperceptible, respiration so slight as scarcely to be perceived, loss of consciousness with absence of convulsions, except in some cases at the moment of recovery from the swoon. After a longer or shorter interval, from a minute or two to some hours, perhaps, with only occasional partial recoveries, consciousness generally returns with slight motions of the lips and eyelids, sighing, more distinct breathing and almost always with a general and copious perspiration.

FAINTING, TREATMENT OF

The treatment consists in placing your patient in the horizontal posture on a bed, a couch, or on the floor, in dashing cold water over the face, admitting cool air, stimulating the nostrils with volatile salts, burnt feathers, or common snuff, and in applying mustard plasters for a few minutes to the soles of the feet, or inside of the legs, if the syncope lasts long and is not relieved by the other expedients. As soon as the patient is able to swallow, a little cold water, either by itself or having in it a teaspoonful or two of sal volatile, or the same quantity of spirits, may be given.

FALSE PAINS

Many women, especially those who are pregnant for the first time, are troubled with what are called false pains. They may come on several days, or even longer, before the actual labour pains are felt. From true labour pains they may be distinguished by the uncertainty of their position. They may attack the belly, the loins, or the back. They recur perfectly irregularly and have no influence whatever in causing the expulsion of the child. They may, however, if they continue long enough, merge into the true pains of labour and only terminate in these. When a woman is subject to these pains towards the close of pregnancy, attention should at once be directed to the stomach and bowels, which frequently when disordered give rise to pains of this description. If the bowels are confined, a gentle dose of castor oil should be taken and, if the stomach appear to be at fault, the diet should be regulated. After the stomach and bowels have been attended to, should the pains still continue unabated and the patient's nights thereby be rendered sleepless, medical advice should be sought. It is necessary not to allow these pains to go on long unchecked, as the patient's strength may become exhausted just as the true pains of labour are setting in and her confinement in consequence be increased in danger.

FALSE RIBS

The five lowermost ribs are so called because one or two of them are loose at one end and the cartilages of the rest run into each other, instead of being separately prolonged to the sternum, or breastbone, as in the case of the true ribs.

FASCIA

A term applied in anatomy to the feet and band-like expansion of a tendon, also called aponeurosis.

FASTING

The remaining without food for a longer period than usual may sometimes be a useful proceeding, as a kind of negative remedy, for those who have been living too freely; but even then, abstemiousness—that is, the partaking of a reduced quantity of very plain food—is better than complete denial of aliment. Fasting, as a term, is more properly applicable to a condition in which the desire for food exists. When the appetite fails, as it does in disease, and its failure is a natural indication that the system is not in a fit condition to receive nourishment, it can scarcely be said that a person fasts. The power of fasting depends greatly upon habit, constitution, climate and other contingent circumstances. It has been, and still is, the custom of many nations to take but one meal in the twenty-four hours; but if into that meal must be crowded the entire nutriment required for the body during that space of time, it is needless to remark that for some time afterwards the person can be fit for little beyond digesting his food, and that such a division of duties would ill suit the arrangements of civilized life, even if it could be followed without serious detriment to health. As a general rule, it may be said that it requires more than an average of constitutional vigour to enable a person in the climate of the United Kingdom to do with even but two meals a day.

FAT

Fat is a very important constituent of the body. It is found diffused around all the tissues. It is the fat that gives roundness and plumpness to the body. When it is deficient, persons are said to be thin or lean. In wasting diseases, as consumption and scrofula, the wasting arises from the loss of the normal fat of the body. In such cases it is usual to recommend a fatty diet, with cod-liver or other animal oil.

FAT, HOW TO GROW

It is the quality rather than the quantity of food that makes us fat or lean. The more we eat of some varieties of food, the leaner we shall become. The foods that produce fat are :—

1. Sugar and sweet substances, as treacle, honey, etc.
2. Saccharine fruits—sweet apples, peaches.
3. Starchy substances—bread, potatoes, cakes, etc.
4. Fat and oils—fat meat, buttermilk, cream, etc.

Those who wish to grow fat should live as much as possible on these substances. A very frequent mistake is to suppose that lean meat is fattening. Liebig, in experimenting on geese, found that a lean goose, weighing four pounds, gained five pounds in thirty-six days on maize only ; of these five pounds, three and a half were pure fat. He obtained similar results by experimenting with sugar.

FATS

"Fats," says Dr. J. A. Russell, "are equally necessary with the albuminoid substances, although they do not directly tend to the upbuilding of the body. The fats are one of the great sources of animal heat and force for work. Their use for producing heat everyone knows from the way in which they are used in the Arctic regions. You all know how the inhabitants of these regions eat fat to a large extent, and eat it in a form which to us would be disgusting. I remember Professor Pillans telling how, in his young days, the street lamps used to be extinguished in Leith through the Russian sailors who came into the town drinking the train oil contained in them. When people have to eat a diet in which fat is deficient, they begin to feel it very soon. Fats are very important, not only for affording animal heat and force for work, but also as tending to the assimilation and digestion of the other substances of a diet ; and albuminoid substances are not properly digested unless in the presence of fat. Butter is the most agreeable way of taking fat when we have to take it by itself. Butterine or oleomargarine, which is made of mutton suet or lard, mixed with milk to give it the flavour of butter, is a perfectly wholesome fat and the only objection to it is that many unprincipled dealers formerly sold it under the name of butter. If honestly sold at an appropriate price, under its own name, it is a most legitimate article of commerce and one which is welcomed as affording a good source of fat for the people. Fats are rather hard to digest by themselves and therefore one easily digested, like butter, is very valuable. That they assist in the digestion is shown by the administration of cod-liver oil in small doses. It is then given, not so much for the sake of the small quantity of fat contained in a teaspoonful of oil, but to promote the digestion and assimilation of other substances. In fact, it is sometimes given in cases of stoutness arising from indigestion, in order to make the patient thinner. Professor Bennett alleged that the dearness of butter was one of the causes of consumption. Now fat is contained in a large number of articles of food. Human milk, for instance, contains 3 per cent.; bacon, 70 per cent.; wheat bread, 1 per cent.; rye bread, 1 per cent.; and potatoes, 0·2 per cent., being only one-fifth of that in bread."

FEEDING CHILDREN

As, during the period of childhood, growth is going on very rapidly, the amount of food taken requires to be of larger amount, proportionately, than in the case of adults. The number of meals given in the day need not exceed four; but rather than allow children to be constantly eating between times, a fifth regular meal may be introduced. Meals should be given at regular hours, so timed that each shall have time to be thoroughly digested before the other is given. It is astonishing that even intelligent parents should regard something to eat as the grand solution or panacea for all the pains and troubles which afflict the young. If a child falls over a stone and bruises its legs, its cries are immediately arrested by a sweet biscuit stuffed into its open mouth. If its temper is upset by the loss of a toy, it is soothed by sweetmeats, the ultimate effect of which is to excite colicky pains in the bowels, which are worse than the original evil and for which in their turn it is presented with peppermint drops, or some other antidote. Because the mouth is open when the child is crying and the mouth leads to the stomach, parents jump to the conclusion that it is open for the purpose of being filled and proceed to cram it accordingly; forgetting all the while that the mouth leads also to the windpipe and may be open for the admission of air to the lungs as well as of food to the stomach, and that if they stuff it with cake or pudding when it is open only for the reception of air, they run the risk of suffocating the bairn when their only wish is to soothe him. Everybody must have seen fits of convulsive cough induced by fragments of food being drawn into the windpipe in such circumstances. To confound crying and the expressions of pain with the craving of hunger is far from being a matter of indifference to the child. If food be given when it wishes only to be relieved from suffering, the offending cause is left in activity and its effects are aggravated by the increased distension of the stomach. But so far is the important truth from being sufficiently impressed on the minds of parents and nurses, that nothing is more common, when the infant refuses to swallow more but still continues to cry, than to toss it in the nurse's arms as if on purpose to shake down its food and then resume the feeding. In such attempts it is too true that the perseverance of the nurse often gets the better of the child and forces it at last to receive the food which it really loathes. Let appetite, then, be the only rule, but allow it to appear and do not attempt to provoke it. The breast ought not to be offered to the infant; it is for him to seek it. He has little need of sucking who takes it with indifference or as if he were conferring a favour. He who is hungry acts very differently; all his gestures express clearly the want and the desire; his eye follows his nurse and tries to interpret her every movement. If he is crying, his cry ceases at her approach and smiles replace his tears. If he is offered the breast, he seizes it with ardour and the mother yields to a natural want.

But it is far otherwise when real appetite is wanting and it then becomes an act of cruelty to tempt the infant by the offer of the breast. It has been pertinently remarked that the lower animals instinctively avoid this error and, instead of offering nourishment too often, rather allow themselves to be strongly solicited before yielding to the wishes of their young. By this provident arrangement, the latter are protected from the evils of too frequently eating. Many mothers imagine that milk is so bland a fluid that it is impossible for an infant to take too much of it ; but the fallacy of the notion is exposed when we recollect that milk is coagulated the moment it reaches the stomach and that the real subject of digestion is curd—a substance not quite so light as milk.

FEET, BARE, FOR CHILDREN

See Bare Feet for Children.

FEET, BLISTERED, IN WALKING

See Blistered Feet in Walking

FEET, COLD, AND SLEEPLESSNESS

See Cold Feet and Sleeplessness.

FEET, DAMP

See Damp Feet.

FEVER, CAUSES OF

The causes of fever may be divided into predisposing and exciting causes. Under the first class may be enumerated age, sex, occupation and country. Children are very liable to measles and scarlet fever. Typhus affects people in middle life and the majority are attacked after thirty years of age. Typhoid, on the contrary, is met with in the young and the majority are attacked under thirty years of age. Relapsing fever is met with at all ages pretty equally, but it is very rarely fatal. Small-pox may attack people at any time of life if not guarded by vaccination and even this is not an absolute safeguard. Sex has very little if any influence, although some are, by their occupation, more liable to catch some diseases than others. Country makes some difference ; thus there are several disorders, as yellow fever, met with in tropical regions, but not heard of in temperate climes and, again, typhus is more common in Germany than typhoid, while in the United Kingdom both occur. The exciting causes of fever are poverty, overcrowding, destitution, bad air, bad food and bad water. It may be stated as a rule that typhus and relapsing fevers are met with in overcrowded courts and alleys and originate in a badly fed family ; but when once the disease has been started in a town or village, it may soon spread rapidly among the better class of inhabitants. Typhoid fever is propagated by defective sewerage, which pollutes the air, and also by impure water. The other fevers are not so much affected by these conditions, but they seem to be passed on from one to another, and people of all classes are liable.

FEVER, CHARACTERISTICS OF

Fever is characterized by increased body-temperature. During its course we have also quickened circulation of the blood, arrested secretion and rapid wasting of the tissues of the body. Fever may constitute the whole sickness. It is then called essential fever. A fever may be due to some local disease or process of irritation in a particular part of the body. It then receives the name of irritative or symptomatic fever. As examples of essential fever we may mention the transient fevers known as ephemeral (because they last a day or so), or febricula (because it is a slight fever), typhoid, typhus and the like. Here the fever is not a symptom of some other malady : it is the malady itself. An example of irritative fever is found in that which follows a wound or a surgical operation, or which accompanies acute inflammation of some organ, as the lungs or kidneys, or the formation of an abscess ; in these instances the fever does not constitute the primary disease : it is merely a symptom of it. Those fevers which run an unbroken course to their termination are called continued ; those in which the course of the fever is interrupted are called periodical. Of periodical fevers, those having a regular period of abatement, without actually ceasing, are called remittent ; those in which the fever disappears to return at short intervals, as the next day, or the second or third day, are called intermittent. Most of the periodical fevers are due to the influence of malarial poisons.

FEVER, DIET IN

The diet during the progress of fever cannot be too simple and, if the anxiety of the nurse does not lead her to urge the patient beyond his inclination, there is little fear of its being carried beyond what is prudent, either in quantity or quality, for nature very kindly takes away the appetite when the powers of digestion fail and when eating would consequently disorder the stomach and aggravate the fever. The patient's desire for cold water or other cooling drink may be indulged *ad libitum*, except in cases of sickness. Plenty of milk, a little plain gruel or milk porridge, with now and then a little weak broth, a cup of tea or coffee, with a little toast, when wished for by the patient, and a moderate quantity of ripe fruit, furnish a bill of fare amply sufficient for every case of fever, until convalescence has begun, unless in very severe cases, where the prostration of strength is great and the quantity that can be taken very small, in which cases strong broth or arrowroot, with a little wine or brandy, or the yolk of an egg, either in a cup of tea or in a little milk, or in wine and water, may be administered, a tablespoonful at a time ; but even in such cases more mischief is to be apprehended by over-stimulating than under-stimulating.

FEVER, GENERAL MANAGEMENT OF

In the general management of fever, the chief points to which attention must be directed are these : (1) to reduce temperature ; (2) to control the force of the circulation and the frequency of the heart's action ; (3) to re-establish the action of the skin, the kidneys and the glandular system in general; and (4) to keep up the nutrition of the body by giving such food and in such quantities as can be best taken up by the digestive organs in their deranged state.

(1) Temperature is to be reduced by the abstraction of heat from the body. In mild cases systematic sponging of the surface with cold vinegar and water, or spirits and water, answers admirably. It is usually grateful and refreshing to the patient ; it promotes cleanliness and tends to re-establish the arrested secretion of the skin at the same time that it removes heat. If cold sponging be uncomfortable

to the patient, the lotion may be warmed, for it is the rapid evaporation of the thin film of fluid that lowers temperature, so that a grateful tepidity by no means defeats the object in view. Cool and slightly acid drinks may also be given in moderation. In graver cases more active measures, such as the ice cap, the wet pack, the cold bath, will be suggested by the physician in charge, who will at the same time prescribe medicines that will have an influence in lowering the heat of the body.

(2) The action of the heart and the force of the circulation are favourably influenced by the greatest quietude that can be obtained both for the body and the mind. All excitement, all hurry, all visits of friends, and conversation on unnecessary topics are hurtful to the patient. He should be placed on a firm, comfortable bed, his room should be large, airy and well ventilated and not darkened unless the light disturbs him. The footsteps of the attendants must be silent, their voices low, their manner quiet but firm.

(3) Cool sponging and the moderate allowance of cold water and acidulated drinks tend to promote secretion whilst they lower temperature. The action of the glandular system is aided by acting upon the bowels by such remedies as magnesia, Rochelle salt, the solution of the citrate of magnesia, or one of the advertised German mineral waters at the same time that remedies directed to the kidneys and skin are used. It is often pleasant to wash the mouth with water containing a few drops of tincture of myrrh.

(4) The patient must be systematically fed. If the fever is one whose duration may be counted by hours, he will not suffer much by abstinence from food ; but the fevers which last days and weeks make serious demands upon the resources of the kitchen. Systematic feeding means regular feeding in small quantities and at short intervals. By small quantities we mean two to four fluid ounces (four to eight tablespoonfuls) of strong meat broth for an adult, and by short intervals two to three hours. In bad fever this must be kept up during the night. The food must be as far as possible palatable, highly nutritious and easy of digestion. We look upon meat broths, milk custards, the more delicate preparations of corn starch, farina and so on as the best fever foods. Wine, brandy and whisky are only to be given as prescribed by the medical man ; and in truth it is one of his most important duties to order in detail every article of the patient's food and drink as well as his physic and to inspect his surroundings as well as to investigate his condition at each visit.

FEVER, HOMŒOPATHIC TREATMENT OF

For feverish attacks of a simple character aconitum napellus is an effectual remedy, given every two, three, or four hours in doses of one drop of the tincture to one tablespoonful of water. For fever of a dangerous character, bryonia, rhus toxicodendron and arsenicum are the remedies, with belladonna, mercurius, and sulphur in scarlet fever.

FEVER, SYMPTOMS OF

The term fever is derived from a Latin word, *febris*, which is obtained in its turn from *ferveo*, which signifies " I am hot," or, " I burn." In common parlance we say that a person is feverish or has fever when the skin is hot and his pulse quick, not transiently, as after exercise, but permanently, for one, or two, or more hours successively. The concomitant symptoms are usually a sense of general uneasiness and fatigue, headache and watchfulness, a foul tongue, with thirst and loss of appetite. These symptoms are usually preceded or ushered in with general or partial rigors or chilliness, or a complete shaking fit ; and they are very frequently, though by no means uniformly, succeeded by perspiration, which produces abatement of heat, headache, thirst and quickness of pulse.

FIBULA

The outer and smaller of the two bones of the leg. It is long and slender in form, the lower end forming the outer part of the ankle.

FILTER, A GOOD

A good filter, not so much for clearing water as for removing from it unwholesome dissolved impurities, is furnished by a charcoal block filter of condensed or compressed carbon. Filters of this sort may be purchased at a small cost. When they are clogged up with dirt, they should be scrubbed or gently scraped, and then cleansed by passing some permanganate of potash and hydrochloric acid through them.

FILTER, COTTAGE

See Cottage Filter.

FILTER, POCKET

See Pocket Filter.

FILTERS, DOMESTIC

Many erroneous ideas are prevalent as to the efficacy of domestic filters, which are believed by many people to render any water fit to drink, however foul it may have been at the beginning. This belief is far from representing the true state of things, as filtered water, although it may be to all appearance clear and free from turbidity, is in the same condition with regard to micro-organisms as it was before filtering. In fact, filters, especially when they have been long in use, act as breeding places for bacteria, thus not only not freeing the water passed through them from organisms, but actually infecting it. The ordinary domestic filter is composed of charcoal or of charcoal and silica, and this material, besides freeing the water passed through it from the larger particles of matter suspended in it, does act chemically to a certain extent upon decomposing organic matter in solution. Their effect upon fresh organic matter, however, appears to be imperceptible. One or two forms of filter which have been found upon experiment to be efficient for the purifying of water are now advertised. In one the filtering medium is a specially prepared fine-grained unglazed porcelain in the form of a cylinder, open at the lower end only, where it is provided with a glass porcelain nozzle. This cylinder is enclosed in an outer case through which the nozzle passes, and in the top of the case is a socket for fastening the filter to a water tap. The water enters the outer case, filters through the cylinder into the inner receptacle, whence it passes out through the nozzle. The other filter resembles the first in its construction, but differs from it in the main element—the material of the inner cylinder. The latter is made of a special earth, and has thicker walls, and consequently a smaller internal space. According to experiments conducted by Dr. Johnston, the latter filter is the more efficient of the two, as after twenty-eight days continuous working with water highly charged with micro-organisms it discharged perfectly sterile water, whilst the first mentioned filter was not proof against the penetration of bacteria after periods varying from four to ten days.

FINGER, BRUISES OF THE

In bruises of the finger by blows, or squeezes, or pinching, which is by far the more frequent occurrence, the pain is usually intense at first, particularly if the nail is implicated in the mischief, and the greatest relief is experienced from immersion of the part in warm water and the application of warm poultices. In somewhat severer cases the nail ultimately falls off, and then poultices are the proper application during the shedding of the nail, with soap-plaster spread on thick leather as a defence to the part during the growth of the new nail. In other cases, the periosteum, or fine membranous covering of the bone, becomes inflamed, and in the progress of the treatment deep incisions become necessary ; such cases must be referred to the surgeon to whom also must necessarily and without delay be entrusted all cases of bruise combined with fracture of the bone.

FINGER, JAMMED

When fingers are jammed by shutting a door or drawer, a most severe form of bruise results, as the door or drawer is usually closed with violence ; now and then there is a wound of the skin, or the nail is torn half off. Few persons have escaped this accident and it is, therefore, needless to say how excruciating is the agony produced for a few minutes. If the end only of the finger be nipped, the nail very soon blackens, in consequence of the blood escaping from the broken small vessels ; and, being pent up beneath the unyielding nail, which it separates from its attachment beneath, causes pain for a few days till the sensitive parts become accustomed to its intrusion. The detached part of the nail dies and, according to the extent of the mischief, the whole nail may die and be replaced by a portion of nail, or an entirely new one, which pushes underneath it from the quick and very gradually thrusts the dead nail on to the tip of the finger till it is completely loosened and thrown off. In general, this process, after the first few days' pain, runs on without much inconvenience ; but sometimes the injury is so great that inflammation of the nail-joint of the finger comes on, accompanied by great pain ; matter is formed and the whole nail is quickly thrown off, which, being done, the tender skin underneath it soon hardens and has an ugly appearance ; at length the new nail sprouts out from the root and after some weeks again ornaments the finger.

FINGER, JAMMED, TREATMENT OF

The most speedy mode of procuring relief after the occurrence of the accident is to plunge the finger into water as hot as can be borne. By so doing, the nail is softened and yields so as to accommodate itself to the blood poured out beneath it and the agony is soon diminished. The finger may then be wrapped in a bread-and-water poultice. By the second or third day the blood will have clotted and the pressure it makes on the sensible skin under the nail may be relieved by scraping the nail with a penknife till it becomes so thin that the scraping causes pain. The thin nail left then bridges and the pressure is mitigated ; but if the squeezed part of the nail be very black and tender when touched, it is best, after scraping, to make a nick through the remaining nail over the black blood and immediately the watery part gushes out ; the pressure almost entirely ceases and instantaneous relief is afforded ; but it rarely prevents the nail from being thrown off. If all the parts of the end of the finger be injured, nearly the same results follow as from an aggravated whitlow and the whole bone, as well as soft parts, may mortify and be thrown off, or require amputation. This is not of rare occurrence with persons of an unhealthy constitution ; and therefore a jammed finger is to be very carefully treated. What has been said with regard to the fingers applies also to jammed toes, the accident to which is usually produced by the fall of heavy weights upon them.

FINGER, WHITLOW ON, THROUGH BRUISE

In some cases of bruised fingers the sheaths of the tendons become the seat of inflammation and one species of whitlow is the consequence. This, as well as other kinds of whitlow arising spontaneously, requires leeching, fomentation and poultices and an early free incision down to and through the inflamed sheath or membrane. This will, of course, be the business of the surgeon ; but it becomes one's duty in such cases to urge an early application to the surgeon and to assure the patient that the relief from intense pain will be immediate and such as cannot be derived from any other treatment whatever.

FIRE, WHAT TO DO IN CASE OF

Should any person's clothing take fire, it is necessary he or she should preserve presence of mind. He should at once drop on to the floor and roll round, meanwhile seizing hold of rug, blanket, carpet or other heavy article and wrapping it round him, thereby smothering out the flame. As an obvious precaution he should at once shout for help. The first duty of an assistant is to throw the person to the ground and extinguish the flame by casting a heavy article like a rug or blanket entirely over him, immediately releasing the face and tucking the article round him to shut off the air that feeds the fire. The theory of at once assuming a prostrate position is that since flames fly upwards, they will not ascend the victim (seeing he is no longer in an upright posture), but go upwards away from the body. Every attempt at rescue must be made with the utmost promptitude and coolness. Do not let the poor person rush about in panic, but throw him to the floor, shut the door and cover him with the heaviest article available. If a lamp be upset in a room, do not throw water on the burning oil, but smother the flames with the rug or carpet, and with the mould from the flower-pots. When aroused by cries of " Fire " waken other inmates of the house, telling them to take some clothing downstairs but not to dress in the room, to close all doors after them, and despatch one to the nearest fire-alarm, policeman, or fire-station. Then see that an exit out of doors is available, and, in the event of retreat from one room being cut off, attend to the saving of all its occupants before attempting to deal with the fire. To rescue a person through smoke, tie a wet handkerchief round the face and mouth, crawl on hands and knees to the person in danger, draw him face downwards to the floor and haul him from the room. It is so easy to inculcate presence of mind in circumstances that would try the nerve of the most self-possessed, nevertheless it is the best, if not the only way to ensure safety.

FISH-HOOKS, WOUNDS FROM

Persons unskilled in such matters think it proper to wriggle the hook about and then pull it out as they would from a fish's mouth. This is an unfitting and painful mode of treatment, for the barb of the hook cannot be freed from the flesh without dragging away some of the soft part in which it is entangled. The readiest and least painful mode of managing this accident is, first to grasp the hook tightly and, with a sharp knife, rip off the line and clear the stem of the binding silk ; then press the blunt end downwards, so that the point should be made to travel onwards till it penetrates the skin and frees the barbed point which is then to be taken hold of and the hook drawn out through the last-made wound. Rarely any inconvenience, beyond a few hours' smarting, follows the accident if thus managed. A poultice should be applied to the part if painful, but, as a necessary precaution, in the event of the hook being impure, first cleanse the wound thoroughly and rub in some antiseptic solution.

FLANNEL UNDERCLOTHING

Both old and young should be careful to wear flannel underclothing during the winter months in all temperate climates ; and, indeed, no one will do amiss who wears it all the year round. To the minds of some the mere mention of woollen garments suggests a heated and irritable condition. We would, however, impress upon them the fact that wool can be and is woven into material of an almost gossamer-like character, as well as into thick mufflers and heavy blankets, and its use can be adapted to all times and seasons. But it is at night-time that the protective influence of flannel is so valuable. During sleep, the nervous system being quiescent, the circulation slow, the senses numbed and at rest, the body is less liable to resist changes of temperature, chills and other evils. Then flannel is the best guardian of our health and comfort. Let us add a word on behalf of babies and young children, who are also unable to resist the external influences of cold. They should always be more warmly clad than adults. The notion of "hardening children" by exposure and cold bathing can easily be carried to dangerous excess. John Hunter's rules should be written in every nursery. For rearing children healthily, he said, there must be "plenty of sleep, plenty of milk and plenty of flannel." Flannel should be frequently changed, particularly if worn at night. When washed, it must be well shaken and hung up to dry, if possible, in the open air. On no account should it be dried near a fire, as that encourages shrinking. Hufeland remarked that flannel is a very salutary dress for those who have begun to decline in years ; for cold and phlegmatic temperaments ; for all who lead a sedentary life ; for individuals subject to cough or frequent colds, gout, diarrhœa and partial congestion of blood ; for all nervous patients and convalescents from severe chronic disorders ; for persons who are readily susceptible to the impressions of the atmosphere ; and for those occupied in such climates and pursuits of life as are exposed to frequent and sudden changes in the weather.

FLANNELS, HOT

See Hot Applications.

FLATULENCE

Flatulence, or the undue collection of gas or air in the stomach or bowels, is brought about by the fermentation of food. It is a common and exceedingly unpleasant symptom of indigestion, sometimes very hard to get rid of. It is also a very troublesome symptom in other diseases affecting the bowels and abdominal cavity. In a great number of instances flatulence is due to improper food, or the abuse of certain articles of food, especially tea.

FLATULENCE, SYMPTOMS AND TREATMENT OF

The symptoms produced by flatulence are often exceedingly unpleasant. There may be a feeling of faintness, of giddiness, or of choking, accompanied by most troublesome belching. The gases thus expelled are most frequently tasteless and odourless ; and if so, are most probably due either to swallowing of air or to the formation of such simple gases as carbonic acid, or carbonated hydrogen, at the expense of the food. Such turns of flatulence are best treated by dieting, mainly solid food with stale bread, but no vegetables, tea, beer, or pastry. Flatulence may be only the symptom of dyspepsia and is often capable of relief by a slight stimulant, as aromatic spirits of ammonia ; but spirituous liquors should be avoided. A little acid or alkali, with a bitter, is often of very great service and nux vomica is an exceedingly valuable remedy in such cases. Occasionally the patient is the subject of horribly nauseous flatulence. He belches up gas of the most horrid odours, disagreeable to himself and every one round him. These gases indicate putrefactive changes in the food and commonly occur in those who have some obstruction preventing the passage of food from the stomach, especially if the obstruction be cancerous in its nature. In cases where there is such obstruction the stomach sometimes expands to an enormous size and vomiting after food is not unfrequent. In these vomited matters are minute organisms called sarcinæ, which are supposed to have much to do with the development of the gas, just as the yeast fungus has in the formation of alcohol from starch and sugar with the evolution of carbonic acid. In all such cases the use of antiseptic remedies to prevent the putrefaction of food is indicated. The two most important forms of antiseptic remedies are carbolic acid and sulphurous acid. Carbolic acid may be given in the dose of one or two drops in a wineglassful of water, half an hour after food. Its taste is somewhat disagreeable, but it is exceedingly efficacious. Sulphurous acid may be given in the same way, thirty drops of the diluted acid in a wineglassful of water, or it may be given as sulphite or bisulphite of soda. Flatulent accumulation in the intestines may be due to any of the foregoing causes, but especially to putrefaction in the food, and apparently in certain cases to secretion of gases from the vessels in the walls of the gut. In children the other variety is not uncommon, especially if they have been allowed to suck empty bottles or breasts, their thumbs, or the like, a practice that is a fruitful source of gripes. Flatus in the intestines often gives rise to very great pain and the patient urgently demands relief. Perhaps the best remedy in such cases, if it can be borne, is turpentine. It tends, however, to upset the stomach and so it is better given as an enema. If taken by the mouth, about a drachm should be given for a dose ; if as an enema, half an ounce or so, beaten up with an egg in a pint of hot water. Dr. Radcliffe, who succeeded better by speaking plainly to his patients than by the most subtle politeness, when asked what was the best remedy for wind in the stomach, replied, "That which will expel it quickest," inquiring of the subject, whether the wind passed upwards or downwards and observing that the former is the most aggravated state of ventriloquism, the latter a sign that the bowels are recovering their healthful tone.

FLESH-FORMING FOODS

The substances which lie at the foundation of this group of foods are albumen, fibrine and casein. These compounds are found nowhere pure, but exist in various forms of vegetable and animal food. The most common form in which the flesh-formers are taken is bread. Bread contains fibrine. The flesh of animals, birds and fishes also contains fibrine. Albumen is found in the white of eggs and also in the blood of animals. Casein is found in milk. It is separated with the butter in cheese. In addition to the flesh-forming principles and fat, animal food contains various other chemical compounds, which are the result of the life of the animal and act in a beneficent manner on the system. If, for instance, we take the flesh of an animal and squeeze it, we get out a juice called the "juice of meat" and, when evaporated, it is called the "extract of flesh." This compound contains little or no albumen, no fibrine or fat, but consists of salts and organic substances, resembling in their composition quinine. They are called by such names as creatine and sarcosine. When this substance is taken with water, in the form of tea, it increases the appetite and renders digestible the food that is taken with it.

FLESH, PROUD

See Proud Flesh.

FOCUS, DIFFERENCE OF, IN EYES OF SAME PERSON

This is not uncommon. One eye may be correct and the other long-sighted or short-sighted ; they may have different degrees of the same defect, or one eye may be long-sighted and the other short-sighted. Sometimes, when the difference is very great, it is convenient to wear glasses that will adapt one eye to distant vision and the other to near. In any case, however, it is essential that the patient should see an oculist or visit an eye hospital, rather than neglect the defect.

FOMENTATIONS

Sometimes these applications of moist heat are medicated and rendered more soothing by the addition of opiates, as in the well-known decoction of camomile flowers and poppy-heads ; but the principal object for which they are employed is to convey warmth to a part. The best application of this kind is made by wringing flannel or boracic lint—by means of two sticks turned in opposite directions—out of boiling water and then, shaking it up, applying it lightly over the part. In this way the heat may be retained for a considerable time. In order to do this thoroughly, two pieces of flannel should be made use of, each of the pieces being about three yards long and having the ends sewn together, so as to admit of the boiling water being wrung out of them. One of these should always be getting ready while the other is being applied. The coarser the flannel, the more efficiently does it act ; owing to its diminished power of conducting heat, warmth is longer retained.

Anodyne Fomentation, No. 1.—Take of poppy-heads, bruised, two ounces ; camomile flowers, half an ounce ; boiling water, a pint and a half. Boil for fifteen minutes, then strain and apply as a fomentation. When applied to bruised and inflamed surfaces, this forms a grateful, soothing application.

Anodyne Fomentation, No. 2.—Take of mallows, dried, an ounce ; camomile flowers, dried, half an ounce ; water, a pint. Boil for a quarter of an hour and strain. This is an emollient application, less soothing, perhaps, than the preceding, but of frequent use.

FOOD, ACTION OF WATER IN

See WATER, ACTION OF, IN FOOD.

FOOD, ELEMENTS OF

The ultimate elements of the food that is taken into the stomach are precisely similar to the ultimate elements of the human body. The principal elements which enter into the composition of the human body are carbon, hydrogen, nitrogen and oxygen. These elements are sometimes called organic elements, because they enter into the composition of all the growing tissues of the animal body. It is principally through the chemical relations of these elements that the functions of the body are carried on. A human body weighing 154 lb. is found to contain :—

	lb.	oz.
Oxygen	111	0
Hydrogen	14	0
Carbon	21	0
Nitrogen	3	10

The other elements which enter into the composition of the body are called the organic elements. They consist of phosphorus, sulphur, fluorine, calcium, sodium, iron, potassium, magnesia, silicon. The compounds containing these elements weigh about 5 lb. 10 oz. Many of these contain the organic elements ; thus, in the ashes of a human body weighing 154 lb., there are found 7 lb. 9 oz. of ashes which contain mineral compounds. These compounds consist of phosphates, sulphates, carbonates, chlorides and fluorides of lime, potash, soda, magnesia and iron.

FOOD IN OLD AGE

The food taken by the aged ought to combine two qualities in an eminent degree. First, it ought to be very nourishing and, secondly, it ought to be easy of digestion. The necessity of relieving the stomach of as much work as possible in old age will be readily apparent. The two qualities of great nourishment and easy digestion will be found in greatest perfection in such food as is more or less fluid. Strong soups, beef-tea, raw eggs, or eggs lightly boiled will be found to answer well. Light puddings, chicken and the like will be found suitable articles of diet, being both nourishing and easy of digestion. Roast beef, if tender, may also be partaken of but sparingly, as butcher's meat of all kinds requires more active exercise than other kinds of food in order to its thorough digestion. All heavy articles of diet must be avoided. Of this nature are pastry-stuffs, made dishes and the like. Great care should thus be exercised in the selection of suitable articles of food ; and as the stomach, participating in those changes which are taking place throughout the body, is unable to digest as large quantities as formerly, the amount given at one time must be diminished, and we must endeavour to convey a greater amount of nourishment into the system in a less bulky form. It may be noticed here that some people have found out through experience that articles of diet which to many prove indigestible agree with them. In such cases it would be unwise to prohibit their use of these things. The man who, during the periods of youth and adult life, has paid any attention to what he has eaten, will be the best judge of what is likely to agree and disagree with him and should be guided accordingly. He who knows from experience that a certain article of food will disagree with him, but takes it merely for the gratification of his palate, acts foolishly and must bear the consequences. Cornaro, in his celebrated treatise on health, speaking of this subject, says that he set about, after recovering from a severe illness, to try the truth of the proverb which says, " Whatever pleases the palate must agree with the stomach and nourish the body." The result of his trial was to prove that the proverb was false ; " for though," he says, " rough and very cold wines, as likewise melons and other fruits, salads, fish, pork, tarts, garden-stuff, pastry and the like, were very pleasing to my palate, they disagreed with my stomach." Let each person, then, find out, by careful attention to this matter, those articles of food which best agree with him and let him be guided accordingly. Do not overload the stomach and never allow yourself to be thoroughly satiated. The sign that a man's stomach is acting well is that he is never conscious of its existence. The moment that a person becomes aware that he or she is possessed of a stomach at all, depend upon it something is wrong. If the aged indulge in heavy meals, they will soon be conscious of feelings of uneasiness in the region of the stomach, which are so many warnings that all is not right and, unless the diet be seen to and its errors corrected, the uneasiness may increase and the headache and furred tongue and nausea which succeed will show the individual to be suffering from a smart attack of indigestion. It is surely wiser, therefore, to abstain from overloading the stomach than to produce so much wretchedness and misery merely for the sake of gratifying the palate.

FOOD OF PATIENT, OBSERVATION OF

Facts with regard to food and sleep are of primary importance as objects of observation. If the patient has been ordered a certain quantity of beef tea at say twelve o'clock in the day, the quantity taken should be carefully noted and reported to the doctor at his visit. There are many nurses who carry food to a patient and take it away again only half eaten, or, perhaps, scarcely touched, who are nevertheless quite ignorant of the fact, and who, if asked if the patient had taken what was ordered him, would answer that he had. Now, information of this sort is very misleading and can scarcely be excused, since a little extra care and trouble would prevent its occurrence. It ought also to be observed whether in eating the patient does so with relish, or whether he rather forces himself to eat against his inclination. Any article of diet which the patient eats with greater avidity than another and any peculiar article that he expresses a wish for should also be carefully noted. Much valuable information may be obtained from the careful observation of this one point alone, because in certain diseases, especially connected with the nervous system, there is a peculiar craving for strange and altogether unsuitable things as articles of diet. The effect which the food produces upon the patient should also be carefully noted. Is he distressed after eating? Does he complain of fulness or other uncomfortable sensation over the stomach? Or does he remain easy and free from pain? To be correctly informed in regard to these various details would enable the physician to judge more correctly of the patient's condition and to vary the articles of diet from time to time, as might be found necessary. When any "fresh" article of diet is employed, its effect upon the patient should be particularly noted.

FOOD, RIGHT QUANTITY AND RIGHT VARIETY OF

The quantity of food taken into the stomach at different meals is a matter of great moment. Speaking generally, the morning meal should comprise one-third of the meat and two-sevenths of the starchy nutriment; dinner should include the remaining two-thirds of the meat and three-sevenths of the starchy materials; and the evening repast consist of the last two-sevenths of the saccharine and starchy matters. By this plan the fatty constituents would be equally divided among the three meals; but this may be varied according to taste. In average health, the amount of food taken into the stomach might safely be left to the control of the appetite, were it not for the machinations of cooks, who contrive to delude and entrap our natural guide in this vitally important affair into all sorts of undesirable excesses. An excellent rule is always to leave the table with an appetite for food, wholesome food, such as roast beef or bread and butter, letting apparently tempting delicacies severely alone. Whilst there are some individuals who, at least in the prime of their lives, are endowed with such ostrich-like stomachs that they can eat immense quantities of unwholesome food with impunity, most adults and nearly all children and old people must either be careful of their diet, or suffer for their neglect. It is, therefore, very important to discover what articles we should avoid. Certain varieties of food generally prove injurious, certain others disagreeable only when people who partake of them are not in perfect health, and still others cause disturbance in the systems of a few peculiarly constituted persons. Such idiosyncrasies as we often meet with in the matter of diet defy explanation. This applies not only to positive but to negative food and to all our principal medicines. Even quinine has been known in a few instances to produce a peculiar and disagreeable eruption on the skin. Some cannot bear mutton, others are made ill by a pear, or water-melon, or cucumber. All these peculiarities are strange enough, but not stranger than are other peculiarities of appetite or taste. Why it is that one likes tomatoes, or peaches, or ice-cream, or liver, or melons, or brown bread, and another is indifferent to all these things, or is, perhaps, disgusted at the sight of them, is a caprice not easily explained. As the classical axiom says, "There's no accounting for taste." There must be variety in our food. The human body is made up of many different elements and in different proportions. There exist invariable combinations in every article of food we eat. Some possess elements which are absent in others. Families are very apt to get into a round of food and sameness of preparation and after a while get tired of everything—have very little inclination to eat at all ; but let them go to a neighbour's, or on a visit a few miles away and the first time they sit down to table they make a tremendous meal. One reason for this is that the food is different and differently prepared, giving different combinations and different elements, some of which may not have been supplied to the body for weeks together and which it is languishing for want of. Few persons, even in the best health, can, without disgust, bear to be confined to a particular food or way of living for any length of time (which is a strong argument that variety of food is natural to mankind) ; and, if so, the debilitated stomachs of valetudinarians cannot be expected to be less fastidious.

FOOD, SUPPLY OF, HOW REGULATED

Persons take food very differently, according to age, height, occupation, climate and season. Children and young persons take more in proportion to their size than adults, as their food supplies the material of growth as well as waste. Persons employed in sedentary and indolent occupations do not require so much food as those who are more actively engaged. Those who live in cold climates consume more heat-giving food than those who reside in warm and tropical climates. The excretion of carbonic acid is greatly increased in cold weather. Water is also very variously got rid of, by the skin, the kidneys and the lungs, in proportion as the body is exposed to external heat or cold.

FOODS, CLASSIFICATION OF

See CLASSIFICATIOHN OF FOODS.

FOODS, FLESH-FORMING

See FLESH-FORMING FOODS.

FOODS, HEAT-AND FORCE-GIVING

See HEAT- AND FORCE-GIVING FOODS.

FOODS, MINERAL

See MINERAL FOODS.

FOODS, NUTRITIVE VALUE OF

See NUTRITIVE VALUE OF FOODS.

FOODS, OLEAGINOUS

See OLEAGINOUS FOODS.

FOODS, WATER IN

Water is contained not only in the liquids drunk as beverages, but in all kinds of solid food. The following is a list of the quantities of water in 100 lb. of different kinds of food :—

Vegetable Food.	lbs.
Fresh Oatmeal	15
Maize Meal	14
Wheaten Flour	14
Barley Meal	14
Peas	14
Haricot Beans	14
Rice	15
Bread	40
Potatoes	75
Grapes	80
Parsnips	81
Beet Root	82
Apples	83
Carrots	89
Cabbages	89
Onions	91
Lettuce	96
Animal Food.	
Butter	10
Bacon	22
Cheese	34
Eggs	72
Lean of Meat	73
Fowl	73
Fish	74
Milk	86

FOOT, THE

The bones of the foot are twenty-six in number. Where they articulate with one another they are covered with a tolerably thick layer of elastic cartilage, and by this means, together with the slight movements of which each bone is capable, a high degree of elasticity is given to the foot and consequently to the step.

FRACTURES

Of fractures we need say but little, as, in every ascertained case of fracture as well as in all doubtful cases, the surgeon must be summoned at once. It may, however, sometimes be useful for a non-professional person to pronounce whether there be fracture or not, as it is of considerable consequence that a fracture or dislocation be speedily reduced before swelling and inflammation are set up. In the following brief articles will be found an enumeration of the most evident proofs of fracture, so that in such cases there will be no difficulty in forming a judgment, but in no case should there be delay in fetching a surgeon. It is essential to err on the safe side.

FRACTURES, COMPOUND

Those fractures are called "compound" which are accompanied with an external wound communicating with the broken bone ; and, in a great proportion of such cases, the bone either protrudes through the skin, or lies so near the surface that it may be seen or felt upon an examination of the wound. Such cases, therefore, admit of no doubt as to the existence of the fracture.

FRACTURES, SIMPLE

Fractures other than compound are called "simple," and the existence of such is not always easy of detection. It is often, however, less difficult to decide that no fracture exists ; for instance, if the arm be broken, it hangs down by the side and the patient has not the power to raise it and, when it is sought to raise it, considerable pain is caused ; again, if the thigh bone, or both the bones of the leg, be fractured, he cannot stand upon that limb, or, by any exertion of his own, move it forwards for the purpose of walking. Now we know that other injuries of these parts may produce the same inability of motion, particularly some time after the accident and we cannot from this alone decide that there is a fracture ; but if, on examination of a case some time after the accident, this inability is found, or if the patient declares that he cannot use the arm or stand upon the leg, which assertion is not infrequently made to carry on some imposture—if upon minute investigation and by cross-questioning it is discovered that he did walk immediately after the accident, or that he could then raise his arm to his head, it may be safely asserted that there is no fracture. The same observation holds good of dislocation of any of the larger joints. The most decided and only satisfactory positive evidence of simple fracture is the sensation of grating, called technically crepitus, which is commonly perceptible not only to the patient himself upon motion of the part, but to another person handling the injured limb. After carefully removing the clothes take the extremity of the limb in one hand and grasp the limb with the other above the injured part and move both hands in a semi-rotary fashion, or, holding the lower portion of the limb in one hand, press with the finger of the other over the suspected seat of fracture, producing at the same time gentle rotatory motion of the extremity, and the operator will, in almost every case of fracture, feel and often hear the grating of the broken ends of the bone against each other. Sometimes the fracture is detected by a preternatural hollow or depression between the retracted portions of the fractured bone.

FRACTURES, TREATMENT OF

The treatment of fractures generally must have special reference to the necessity of keeping the broken ends in contact, and as nearly as possible in their proper relative positions, so that the curative process may proceed without interruption and, after it is completed, the symmetry of the limb may be unaltered. A firm bed should be prepared, for which purpose a mattress is the most suitable, or a flat board, sufficiently large, should be placed under the feather bed in order to render it as firm as possible and thus prevent the patient from sinking in, which is apt to occur when he is confined long to one position on a feather bed—a circumstance which materially interferes with the comfort of the patient and the healthy progress of the case. It has been well said that the "materials necessary for the cure of broken bones are few and simple and can be provided without difficulty; they consist only of linen bandages, about four fingers in breadth and half a dozen yards in length; of pads which may be made of three or four layers of rug or blanket tightly quilted together, a pillow filled with tow, cocoa-nut fibres, chaff, or leaves; and of splints, either of deal boards, four fingers wide, quarter-inch thick and of length corresponding to that of the broken limb, or of wheat sheaves, laid side by side, of the same extent and thickness, folded up in cloth and quilted to prevent them from moving about, or of the fresh bark of trees." The pads should be a little longer than the splints, so that they may be twined over each end and backed so as to prevent them from slipping. Fractures may be treated without splints, as by using starch bandages, or by position simply (*see* Plates I and II of Bandaging. The "many-tailed bandage" is made of linen and consists of a band of linen a yard long and from two to three inches wide, across which are placed transversely nine or ten pieces of the same width and of sufficient length for their ends to overlap each other. After surrounding the limb, each piece half covers the one next to it and they are all sewn at the middle to the long band. To apply this bandage, the limb is to be carefully raised to a sufficient height to pass the bandage under it, the long band being placed in a line corresponding with that of the limb ; the ends of the cross-pieces are to be pulled out and laid smoothly and regularly on the bed ; they are then to be turned over the limb alternately from below upwards, one over the other, till the whole limb is completely enveloped. The application of this bandage is much less fatiguing to the patient than that of a roller and is particularly serviceable when dressings of any kind are required to a wound, as in compound fracture. Mr. South says : " Broken limbs should not be ' set,' as it is called—that is, bound up with roller splints and pads—for the first three or four days, as for some hours after the accident the part continues to swell. If bandaged up tightly while this is going on, much unnecessary pain is produced and, if the bandages be not slackened, mortification may follow, which I have known to occur. It is best, then, at first, only to lay the broken bone in as comfortable a position as possible and as nearly as can be in its natural position ; and it may be lightly bound to a single splint for the purpose of keeping it steady. The arm, whether broken above or below the elbow, will rest most comfortably upon a pillow, half bent ; the thigh or leg will rest most easily upon the outer side, with the knee bent. Broken ribs and broken collar-bones are exceptions to the general rule and require immediate attention." Many surgeons place the limb in splints as soon as possible. There is always a disposition to spasmodic starting of the broken limb for some time after the accident, which tends to displace the bones and to increase the laceration of the soft parts ; this may be prevented in great measure by the early steadying of the whole with splints, which need not be bound tightly, but so applied as to be loosened readily, if needful. The management of broken bones consists, as has been said, in putting the displaced extremities in their natural situation and in retaining them there. The consolidation is the work of nature and is effected by a process for which a state of perfect rest is above all things necessary. The means employed for the reduction of a fracture are chiefly three and comprise extension, counter-extension and setting. Extension implies the pulling of the broken part in a direction from the trunk of the body, which is fixed by counter-extension in the opposite direction. In making extension, the hand should not grasp the extremity of the broken bone, but should be applied below the joint and the extension continued steadily and gently till the ends are on a line and, if possible, one placed against the other. Thus, in a fracture of the thigh, the surgeon grasps the leg below the knee, not the lower part of the thigh. After a bone has been set, it should not be disturbed for some time and, in general, if left quiet, nature will complete the cure ; but as there is a tendency to displacement of the bones from muscular action, it is necessary to fix the broken limb effectually by splints so that it may retain its position for the whole time the curative process is going on. Whenever there is a fracture of a lower limb, the patient should lie in bed until the union is complete and care should be taken that the broken limb bear throughout its whole length equally and perpendicularly upon the surface on which it rests and not be partially supported only. It may be observed that in all cases of accident, where long and continuous confinement to bed may be anticipated, the ease and comfort of the patient will be best consulted by laying him upon a hard mattress in preference to a feather bed.

FRECKLES

are sometimes called **lentigines** (Latin, **lens, lentis,** "lentil") from their resemblance to the lentil in colour, if not in size. This affection usually makes its appearance for the first time in summer and is always more marked at that season of the year; for this reason it is supposed to be due to the action of the sun's rays, though the precise mode of its causation is not well understood. Freckles are occasionally met with on portions of the body not exposed to the direct action of sunlight. They are small, round, irregularly-shaped, or even angularly-outlined, yellowish or yellowish-brown flecks, varying in size from the diameter of a small shot to that of a split pea, symmetrically disposed, without regularity of distribution, on the neck, face, backs of the hands and arms, when habitually exposed to the sun's rays. They may appear before the third or fourth year of life and generally vanish in advanced age. Once having appeared, they last a long time, fading in winter to reappear in summer. Persons of fair complexion are most liable to them and those having red hair are rarely quite free from freckles; dark-complexioned people are not, however, always exempt. They are attended by no symptoms and are only annoying by reason of the disfigurement they cause.

FRECKLES, REMOVAL OF

When there are discoloured marks on the skin, as in freckles, the colour deposit takes place in the deeper layer of the epidermis; hence they are very difficult of removal, because, in order to take away all the colouring matter at once, this portion of the skin would have to be removed down to the papillæ, as in the case of a blister. Now this is painful and troublesome and, moreover, experience shows that it would be useless to blister off such deformities, because we not infrequently see blisters on different portions of the body actually followed by staining of the skin where no such staining existed before. It has been found possible in many cases, however, by proper stimulants to induce an absorption of the pigment, or produce rapid change in the skin, when the new-formed cells will not have the colour.

FRECKLES, TREATMENT OF

There is no convenient preventive treatment when a natural predisposition to freckles exists. Such external remedies are of service in diminishing the intensity of the discoloration as act on the epidermis and thus remove the excess of colouring matter. Among these may be mentioned several preparations of mercury, subnitrate of bismuth and mild alkaline applications, as solutions of carbonate of soda, or of carbonate of potash. These, variously combined with emulsion of almonds and tincture of benzoin, form agreeable remedies, which should be perseveringly used. Better results are obtained by the prolonged use of mild remedies than by strong applications. Freckles may be rapidly removed by using applications of such strength that their continuous action for some hours gives rise to the formation of minute blisters. The pigment may be carefully removed with the epidermis forming the roof of the blister. The epidermis which re-forms over the surface thus treated will be found to be free from excess of pigment. This process is not to be advised, however, as the benefit is of short duration and, in unskilful hands, permanent injury to the skin might result. Various ointments are recommended ; they contain stimulating substances and act by exciting a rapid formation of the superficial elements of the skin and their correspondingly rapid shedding (exfoliation), and should only be used under the observation and advice of a medical man.

FRECKLES, WITHERING'S COSMETIC LOTION FOR

This preparation for freckles was compounded as follows :—Take a teacupful of sour milk ; scrape into it a quantity of horseradish ; let it stand for several hours, then strain well and apply with a camel-hair brush two or three times a day. The following recipes are also said to remove either freckles, tan, or sunburn and are certainly harmless :—Dip a bunch of green grapes in a basin of water ; sprinkle it with powdered alum and salt mixed ; wrap the grapes in paper and bake them under hot ashes ; then express the juice and wash the face with the liquid, which will usually remove either freckles, tan, or sunburn. Or, put two spoonfuls of sweet cream into half a pint of new milk ; squeeze into it the juice of a lemon, add half a glass of genuine French brandy, a little alum and loaf sugar ; boil the whole, skim it well and when cool it is fit for use.

FRICTION

There is no subject to which it is more necessary to call the attention of every person desirous of preserving health or attaining longevity than to the advantages of friction. The ancients placed so high a value on it that they scarcely passed a day without it, whereas the moderns pay but little attention to this useful practice. Every one knows what currying will do for horses in making them sleek and gay, lively and active, insomuch that it is equivalent to half their food. It aids the circulation and assists nature to throw off, by perspiration, the grosser parts of the juices, which stop the full and free circulation. Precisely the same effects will follow the daily use of active friction on the human subject. It has great power in strengthening the digestive organs, promoting a free perspiration, resolving obstructions, loosening contractions and imparting a comfortable glow and an increase of energy to the whole system. Thus it is uniformly of great service to the gouty and rheumatic, to the paralytic, the weakly and the nervous ; in short, to all persons afflicted with any chronic disease, or suffering under a state of general debility. It is also highly useful in promoting the growth and activity of children and in preventing those obstructions to which they are liable and therefore merits the regard of every parent. Friction may be applied to the body by the hand, or with flannel, rough woollen gloves, or the flesh-brush. The flesh-brush is by far the best mode of applying friction, except where the assistance of aromatics or embrocations is necessary. In cases where the application of cold water, in addition to moderate friction, is recommended, a sponge is sometimes made use of, from its power of absorbing water. But by immersing a flesh-brush in water, the same effect may be better obtained, as the advantages of friction and the warmth and circulation which it occasions are then gained at the same time with those of the cold water. This is the best mode of applying cold water to the head in cases of giddiness, apoplectic or paralytic affections, headache, etc., in which cases the union of cold water and friction is of inestimable benefit. The best time for using friction is in the morning and evening, when the stomach is not distended with food and the proper time for continuing it is from fifteen to thirty minutes at each time. In cases of bad swelling, or stiff joints, it is generally necessary to employ it for an hour twice a day.

FRUITS

The best kinds of fruit are apples, pears, gooseberries, red and white currants, grapes, peaches, apricots, strawberries and oranges. Of course they are wholesome only when quite ripe and of apples and pears the more mellow and tender the fruit the better. Cherries, plums, olives, cucumbers, melons and all kinds of nuts are, in general, difficult of digestion and fit only for the strong and active. Black currants have a tendency to affect the bowels and are not wholesome. The fruits classed under the head of small berries—the cranberry, the bilberry and the red whortleberry—are seldom eaten except when baked and in that state their use very seldom proves injurious. Most fruits, especially those which are soft and watery, rapidly undergo decay and fermentation. The changes which succulent fruits undergo and the frequent presence in them of much acid or acid salt render them liable to cause, especially when unripe or over-ripe, diarrhœa and other derangements of the digestive system. Irritation and even fatal inflammation of the intestines have resulted from the indigestible skins of certain fruits, such as plums. The amount of actual nutriment in many of the most delicious fruits and vegetables is exceedingly small and enormous quantities must be eaten in order to make a meal of them, and of some varieties no amount that can be swallowed will very long satisfy the appetite. To judge of the value of food, however, by the amount of its nutriment merely is as unscientific and unphilosophical as to judge of the character of men by their weight. The watery and luscious fruits and vegetables serve not only to quench the thirst, to supply acids, sugar, etc., to the body, but also to stimulate the appetite for other and more substantial food, and to assist its digestion and very likely to enhance, in ways that are past finding out, its assimilative power. Fruits do not contain more than five per cent. of solid matter and very little of the albuminoids ; but they contain considerable sugar and acids. They are valuable in diet and also for their saline ingredients. Ripe luscious fruits of nearly all the leading varieties can be eaten in their season by those in average health in great quantities, to the full extent of their appetite and between meals, not only without injury, but with very great benefit. The proper time, however, for eating fruits of every description is half an hour before breakfast and dinner; and if in their ripe, raw, natural and fresh state, the acid which their juices contain and which is their healthful quality is at once absorbed and carried, in its strength, into the circulation. There are, of course, exceptions to every rule and the consumption even of the most wholesome fruits in considerable quantities may overtax the digestive powers of some persons. These persons, therefore, can only partake of fruit in moderation, the precise quantity being speedily ascertained from experience.

FULL DIET

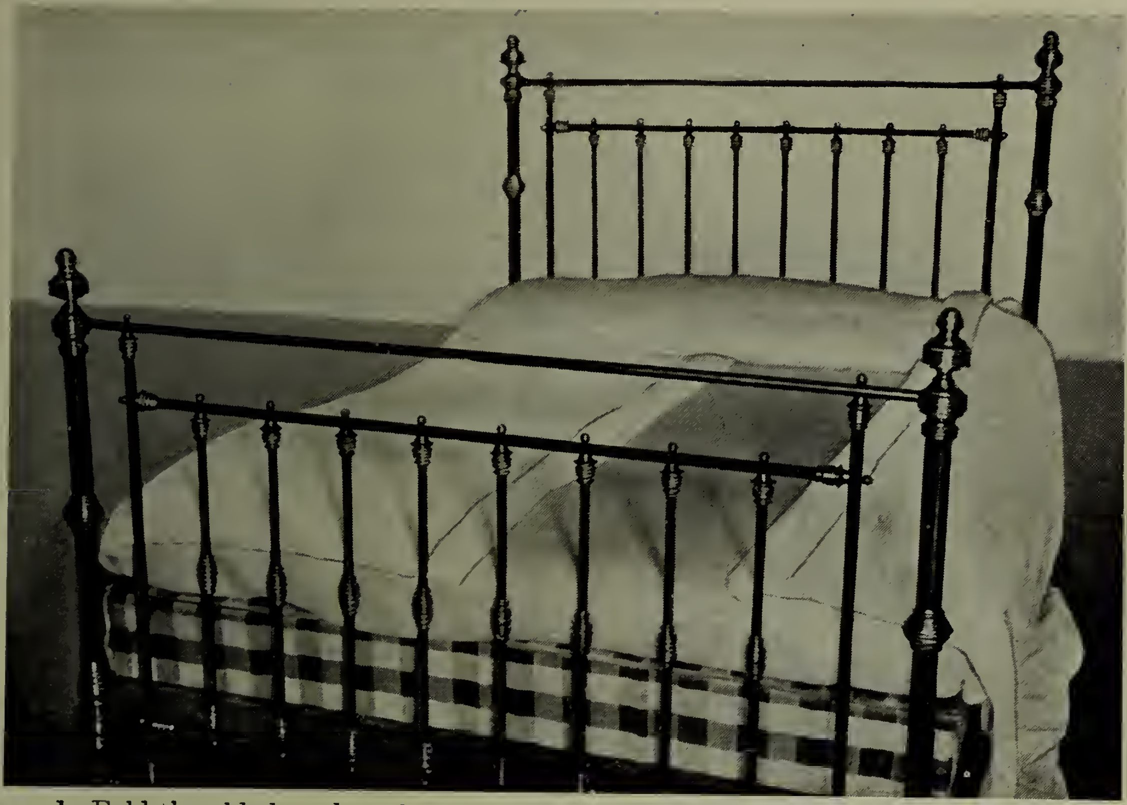
When the term "full diet" is used, it is sought to convey the idea that food of good and thoroughly nutritious properties is supplied in quantity sufficient completely to satisfy the wants of the system. Its quality may be plain and simple and it may possess no other stimulating property than that which wholesome, well-prepared food never fails to afford to the healthy stomach which is ready to receive it.

FURNITURE AND ARRANGEMENT OF SICK-ROOM

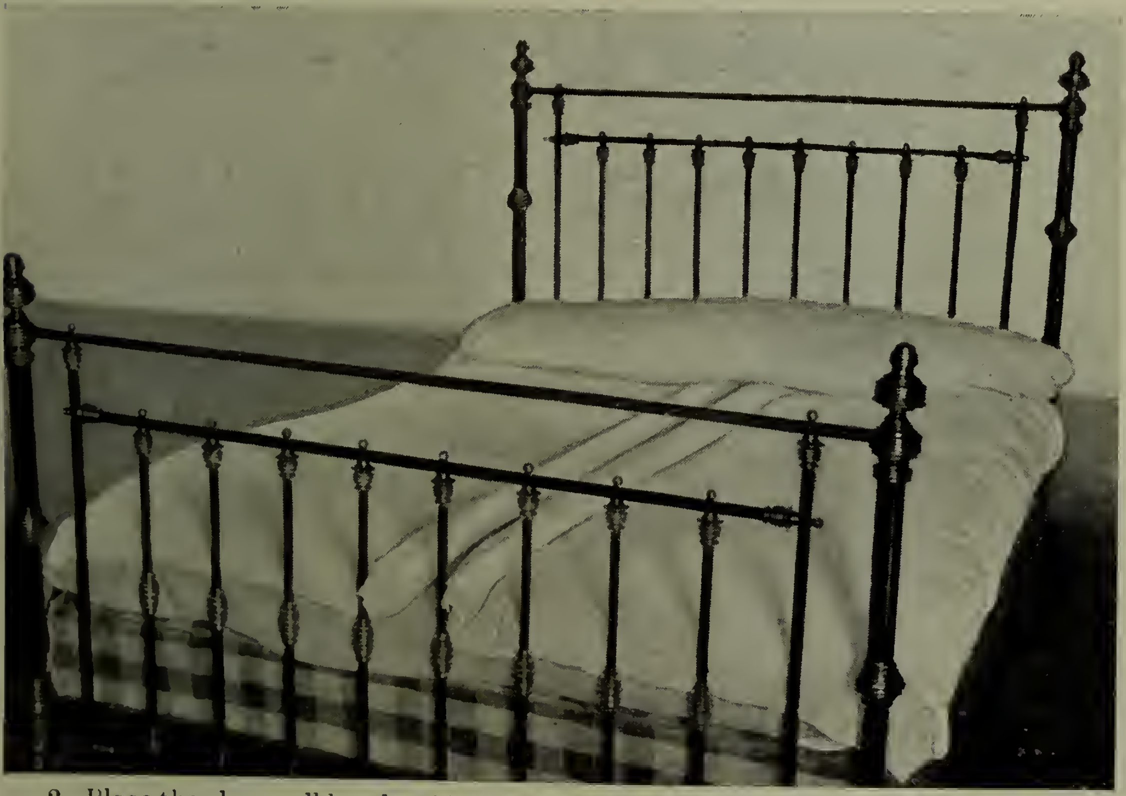
The best room for a sick person is one which is on the sunny side of a house and has an open fireplace in it. Should there be such a room to which the patient can be removed, the nurse should suggest the change. If the chimney is stopped with a fire-board, newspaper, blower, bunch of straw, or other obstruction, the nurse should at once remove it and see that the register is up. The room should be kept bright and cheerful, unless the condition of the patient requires it darkened. Let in the sunlight freely, always shading the patient's face. If the bed faces the window, turn it round, or, better, set up a screen. Bars and streaks of light from ill-fitting blinds are very trying to the eyes. The bed should be pulled out from the wall as far as possible, that the air may have access to it from all sides and the nurse move easily about it. If the physician prefers a darkened room, the nurse must accustom herself to moving about quietly in it and let no consideration for her own convenience lead her to object to the order. Carry out of the room breakable ornaments and everything that will only make a lodging-place for dust. Take away rocking-chairs that persons might be tempted to swing in and keep everything about the washstand perfectly clean and fresh. If there is no adjoining room or closet in which the nurse can keep the various little matters which she requires in her work, keep them out of sight behind a screen. A common clothes-horse, covered with a quilt or blanket-shawl, makes a screen easily procured. No article of furniture that is not required either by the patient himself or by the attendant should be allowed to remain in the sick-room. If there is sufficient space in the apartment to accommodate two beds, the twenty-four hours can be divided between them, the day being passed in the one and the night in the other.

1. *Bedstead.*—The best and most convenient bedstead for the sick-room is one made of iron and not standing too high from the ground. Curtains round the bed must be dispensed with; in the case of infectious diseases they afford lodgment to the poison and increase its virulence many-fold. The best kind of mattress is one made of

TO CHANGE SHEETS.



1. Fold the old sheet lengthways in a narrow roll until it reaches the side of the patient, then fold the clean sheet in the same way, leaving enough unrolled to replace the portion of the dirty sheet that has been folded.



2. Place the clean roll by the side of the dirty one, and a little gentle shifting will take the patient over. Remove the dirty sheet and unroll the clean one.

hair, which admits of being frequently pulled out and exposed to the air. A hair or straw pillow is much better and cooler for the head than one of feathers.

2. *Bed-rest.*—When the regularly made piece of furniture is not at hand, turn up a high flat-backed chair in such a way that the four feet are in the air and that it rests on the edge of the seat and top of the back. Slip the back down in the bed, well covered with pillows filled in to the small of the patient's back and supporting his head and shoulders. When there is a permanently feeble patient a proper rest is necessary, which can be lowered or raised, and it should have arms or braces to keep the patient from slipping off at either side.

3. *Bedside Tables.*—A small, light table, with a drawer in it, should be placed for the patient's use. A glass of water or of broken ice, covered with a saucer or a napkin; an orange, nicely prepared in little sections just large enough for a mouthful, or any other ripe fruit, if the doctor permits it, put over a bowl in which there is ice; a few fresh flowers or a small growing plant may be allowed on a bedside table, but nothing else.

4. *Bed-clothes.*—Patients are apt to be overloaded with blankets and their breathing, already sufficiently hampered by disease, is still more impeded by the weight that is laid upon their chests.

5. *Pillows.*—In arranging the patient's pillows, care should be taken not to pile them too high and thrust the head forward upon the chest. Frequently this error is committed and the breathlessness from which he suffers is greatly aggravated in consequence.

6. *Chest of Drawers.*—A chest of drawers should also be in the sick-room. It ought to contain clean towels, old, unsoiled linen (soiled linen should never be allowed to remain about the room), scissors, pieces of tape, pieces of sticking-plaster and sundry other articles that are likely to be in requisition. Should there not be sufficient accommodation for a sofa, an invalid chair ought to be provided, and should be so made that the patient can enter it with ease and have efficient support while in it.

7. *Mirrors, Carpets, and Pictures.* If there be a mirror in the room, it had better be removed, or if allowed to remain, it must be placed so that the patient cannot see himself in it while lying in bed. Unless the case be one of fever, the carpet need not be removed from the room. The walls also should be hung with pictures.

GALL-BLADDER, THE

This portion of the intestines belongs to the liver and is attached to the under side of its right lobe. In form and nature it is a membranous bag or receptacle, large enough to contain one or two ounces of fluid, called gall. It seems to serve as a kind of reservoir to receive the surplus bile from the liver during the intervals of digestion.

GALL-STONES

Gall-stones, or solid concretions formed of bile, are usually formed in the gall-bladder, but sometimes, though rarely, also in the bile ducts. Most gall-stones are mainly made up of crystalline matter, mixed with the colouring matter of bile and may grow to very considerable size. When there is only one gall-stone in the bladder, it may grow to the size of a hen's egg, which it somewhat resembles in shape. More frequently, a number are formed and then they have facets or smooth surfaces, corresponding to the points where they have come in contact one with another. Gall-stones are more common in women than in men, perhaps owing to the modes of life differing considerably, for of all inducing causes sedentary occupations and confinements seem to be the most potent. Age also has some effect, for gall-stones are rare in the most active period of life, that is under thirty. Their formation is also associated with a tendency to gout and may possibly be accounted for in the same way, namely, a sluggish life of over-eating and drinking.

The symptoms from the passing of a gall-stone generally come on quite suddenly, often two or three hours after food, and the pain is described as a kind of spasm. Its situation is on the right side of the abdomen, just below the false ribs, and generally extends through to the back, near the lower angle of the blade-bone, or between that and the spine. The pain is not constant; it comes by fits and starts and, while it lasts, is so severe that the patient writhes in agony, or rolls on the floor, pressing his hands on his side, for pressure frequently relieves the pain. This pain is, moreover, attended with a feeling of constriction in the lower part of the chest, which is frequently interpreted as a difficulty in breathing, so that a slight attack may be put down to pleurisy. The fit, as it is called, of gall-stones produces severe exhaustion, the pulse becomes weak, the face pallid and the whole body is covered with cold sweat. The pain of irritation in the vicinity of the stomach causes it to contract and so there is vomiting, which sometimes aggravates, but more frequently relieves, the pain. It is rare for gall-stones to cause death during their passage through the bile ducts, and in the majority of cases, especially if the period of the passage has been short, as soon as the passage is accomplished, the patient is well, though, if the passage has been long delayed, or gall-stone follows gall-stone as sometimes happens, the constitution may be greatly shattered. When in the intestine as a rule, all danger is past; but if the stone be very large, it may stick in the intestine and cause obstruction of the bowels, or, if it be very small, it may become fixed in that troublesome spot, the vermiform appendix and so cause appendicitis. Individuals who have once suffered from gall-stones are unfortunately liable to do so again.

In the treatment of gall-stones the first thing to be done is to relieve the pain and spasm while the stone is passing and to attempt to get rid of those still left in the gall-bladder, if any, by dissolving them and so prevent new ones from forming. For relieving the pain and spasm there is nothing like opium. It is best given by the subcutaneous method. But the sickness is a thing not to be slighted and for it we prescribe spirit of chloroform, ice and the like remedies. Frequently, however, for this purpose large draughts of hot water and carbonate of soda may be given, partially effervescing with tartaric acid, for the effervescence passes off instantaneously and does much good. The hot water may be repeated as often as necessary. On the other hand, ice is one of the best remedies we can use. But if hot water inside does good, the hot bath sometimes does more, especially accompanied by opiate subcutaneous injections. Thus sleep may often be procured, when it can be had in no other way. To get rid of any gall-stones left in the bladder various remedies have been recommended. Chief among these are alkalies and alkaline carbonates and chloroform or ether. Chief among preventives are air, exercise and plain food. Stimulants are seldom beneficial. The bowels should be moved daily, if necessary, by Pullna or Friedrichshall water; in the evening a small dose of blue pill may be taken from time to time. If the patient can afford to go abroad, he should reside at an appropriate watering-place, such as Vichy.

GALL, OINTMENT. *See* OINTMENTS.

GANGLIA

The ganglia of the special senses develop the powers of sight, smell, taste, etc.; and last of all, the spinal cord seems to be most essentially connected with animal life and particularly with the powers of locomotion, independently of the conscious mind of the individual, possessing in itself powers of sensation unconnected with the brain. "These powers are exhibited," it has been remarked, "in what are called the 'reflex' nervous actions; that is to say, supposing—as sometimes occurs from injury, or is done for purposes of experiment in animals—the spinal cord is severed at any point, all sensation, all power of the will over the parts of the body, below the line of severance is totally lost; but yet, irritation, such as the prick of a pin, to such a part as the foot, will cause the leg to be retracted—evidently showing that the sensation excited by the pin was felt, so to speak, by the spinal cord, through one set of nerve fibres and 'reflected' from it again through another, causing contraction of the muscles of the limb—independent either of the sense or will of the individual." *See also* NERVOUS SYSTEM.

GANGRENE

Gangrene is the name given to the death of an extensive tract of visible tissue. The causes are many; thus gangrene may result from a severe crushing of the part, as when a limb is run over, or it may be due to continued pressure, as in the case of bed-sores, or to acute inflammation, as in carbuncles, or to excessive heat or cold, as in burns or frost-bites, or to certain changes in the blood-vessels, or in the blood, as occurs in senile gangrene, and in diabetes. The treatment of gangrene varies much according to the form and cause. As a general rule it consists in the removal by the surgeon of the dead part, together with a sufficiency of the living part adjacent to it. Every effort is also to be made to maintain a healthy and aseptic condition of the neighbouring healthy tissue. At the same time by means of suitable nourishment and other hygienic measures everything should be done to improve the general bodily health, and so increase the body's power to resist the germs of decay.

GARGLES

Gargles are preparations intended for application to the interior of the throat. Their action differs according to the ingredients they contain. They may be employed to soothe an inflamed surface and exercise an astringent action upon it, or to hasten suppuration. They may also be employed to exercise a special influence over the part, as in the case of ulcerated and diphtheritic sore throats. When the inflammation is slight, it is of little consequence whether the gargle be cold or lukewarm; when more severe, it is better to raise it to the temperature of the body. When it is desired to bring about suppuration, it should be employed as warm as can be borne.

Alum Gargle.—Take of powdered alum, a drachm and a half; water, 8 ozs. To be used frequently. This is a useful gargle in cases of relaxation of the mucous membrane of the throat and mouth with excessive secretion. The addition of ½ an oz. of tincture of cayenne renders it more efficacious when the tonsils and uvula are relaxed.

Alum Gargle with Tincture of Myrrh.—Take of powdered alum, 80 grains; tincture of myrrh, ½ an oz.; water, 8½ ozs.; mix. Use frequently in ulceration of the mouth.

Borax Gargle.—Take a pinch of powdered borax or glacialine and a pinch of common salt and about half a tumbler of cold water; mix and gargle every morning after using the tooth-brush. It is a useful preventive of relaxed throat and strengthens the throat muscles and cords.

Catechu and Cayenne Gargle.—Take of tincture of catechu, 1 oz.; tincture of cayenne, ½ an oz.; water, 6½ ozs.; mix. A tablespoonful in a wineglassful of water every four hours.

Gargle for Thrush (No. 1).—Take of glycerine or borax, 1 oz.; water, 8 ozs.; mix and use frequently.

Gargle for Thrush (No. 2).—Take of borax, two drachms; glycerine, 1 oz.; mix. Apply to the mouth and tongue by means of a camel-hair pencil.

Gargle to be used when Acute Stage of Inflammation is Over.—Take of diluted hydrochloric acid, two drachms; barley water, 8 ozs.; mix and use frequently.

Gargle to Promote Suppuration.—Take half a pint of compound infusion of linseed and mix it with an equal quantity of compound barley water. This gargle should be used warm and in large quantities, as warmth favours suppuration. When the abscess has burst, it will be necessary to employ a gargle that will be soothing and at the same time promote healing. For this purpose two drachms of tincture of myrrh may be added to 8 ozs. of barley water and used as a gargle.

Nitre Gargle.—This is a gargle for simple inflamed throat. Take of purified nitre, two drachms; barley water, 8 ozs.; mix. To be used frequently.

Tannin Gargle.—Take of tannic acid, 80 grains; rose-water, 8 oz.; mix. Useful in relaxed sore throat.

GASTRIC JUICE

This is a fluid secreted from the interior of the stomach and is the principal agent in digestion. It is a transparent and slightly viscid fluid, which, when obtained from the stomach of an animal while fasting, possesses neither acid nor alkaline reaction, but has a saline taste. During the process of digestion, on the contrary, it is distinctly acid.

GASTRIC ULCER

This disease, which may be regarded as simple ulceration of the stomach, occurs most frequently in young persons, especially females of the servant class, though by no means limited to them. Its symptoms are mainly these—pains, vomiting, bleeding; in females absence of menstruation. There are loss of flesh and pallor of countenance and finally the ulcer may perforate the wall of the stomach and gave rise to general inflammation of the cavity of the abdomen and so cause death.

The simplest and the best treatment, especially when there is bleeding, is ice. The patient may eat it freely, not sucking it only, but champing it and swallowing it in the rough. When there is bleeding, ice should also be kept applied over the pit of the stomach and below the false ribs on the left side. For the pain, which is often very severe, perhaps opium is the best remedy and it is best given locally, that is, by the stomach in this particular case. The best preparation is the extract made into small pills—the smaller the better, half a grain at a time. If these are rejected, morphia in smaller dose might be tried in the same way; if that fail, it must be given subcutaneously. For the pain, when there is no bleeding, bismuth is often one of the best remedies we can give, but it must be in quantities of twenty or thirty grains or more. For the vomiting, ice is the best remedy—and rest. The stomach will not bear food, and so food must be given in the smallest possible quantity, and of the most unirritating possible quality. Of all foods perhaps the best is milk; after a time, essence (not extract) of meat is to be given, but not at first. In case of vomiting still continuing, all food must be stopped and nutrient enemata used. When bleeding occurs, the same rules are to be carried out, together with absolute rest. Stimulants are not admissible, except excessively dry iced champagne. Remedies, however, may be given to arrest the bleeding, opium among the number. The most trustworthy is gallic acid, twenty grains for a dose, along with ten drops of dilute sulphuric acid, given in the smallest possible quantity of water which will enable the patient to swallow the mass in comfort. By and by, when the patient begins to improve, iron is to be given, but cautiously, beginning with weak non-astringent preparations like the ammonio-citrate or tartrated iron. Infusion of calumba, too, is most useful, especially later, when a few drops of acid can be given with it to aid digestion. Of course such a mode of treatment confines the bowels and these must be opened, first of all by enemata, later by gentle laxatives, such as compound rhubarb powder, or castor oil. Great care in dieting must be observed long after recovery, for relapse is frequent and dangerous.

GASTRITIS

Gastritis is inflammation of the mucous membrane of the stomach, causing pain of a burning character at the pit of the stomach, vomiting on eating and drinking, and sometimes hiccough. The pulse becomes small and feeble; the patient is pale and faint, with cold extremities and damp skin; the movements of the diaphragm cause pain and consequently the breathing is short; there is tormenting thirst at times, although the water drunk is vomited at once. The disease may be brought on by taking any substance into the stomach which is in itself poisonous, or becomes so because of the particular conditions under which it is taken, as quantities of cold sour drink taken when the body is very hot and there is perspiration; large amounts or great variety of food taken at one time when the constitution is feeble, or there is convalescence from serious illness, such as typhoid fever, may produce the disease; and it is sometimes brought on by imperfect mastication of harmless food. The doctor should be called in on the appearance of the symptoms and his directions implicitly followed.

GASTRITIS, TREATMENT OF

Keep the patient at rest, absolutely, in bed. If cold water can be retained, it is safe to give it as a drink. If enemata are ordered, give them gently and disturb the patient's position as little as possible. The feeding will sometimes be left to the judgment of the nurse, with the general direction to give food in small quantities; and here the nurse should understand that, when the doctor has done all that he can, the life of the patient will not infrequently depend upon her patience and prudence in administering food. If there have been vomiting and inability to retain any food, do not offend the weak stomach with the quantity or quality of what is offered. Confine the diet to milk diluted with lime-water, two tablespoonfuls to a half pint of milk. This will give all the nourishment you need to begin with. Give a teaspoonful once in half an hour. If it is kept down for two or three hours, increase the dose to a dessert-spoonful. Gradually increase the dose and lengthen the interval until two tablespoonfuls can be taken every two hours. You will have made a great gain by this time, but do not be in too great a hurry. On the slightest feeling of nausea or belching of wind, omit the dose till the sensation has gone by. If you can, by slow degrees, after one or two days bring your patient to take two ounces of milk and lime-water (as above) once in two hours you may safely continue in this way for several days, feeling sure that he is getting considerable nourishment in the circumstances. It is always better to shorten the interval between the dose than to increase the quantity too suddenly. From milk you may gradually go to thin gruel, made very smoothly, of rice flour, arrowroot, or corn-starch and milk. Any further change must be made only with the permission of the doctor. In giving the milk, do so slowly and do not put more than a teaspoonful into the mouth at one time. If the patient is able to drink from a cup put the amount for one time into a small wide-lipped one, with a handle and raise the patient a little by passing your arm under the pillow. When a sick person cannot be lifted, a glass tube is very useful, through which the milk can be sucked. Keep the patient's feet and hands warm and see to pure air and an even temperature.

GASTRODYNIA

See PAIN IN THE STOMACH.

GELATINE

This substance is much more conspicuous in the human body than either albumen or fibrine. It constitutes the cement of the bones and is the substance out of which the cell walls of all the tissues of the body are formed. Gelatine alone is incapable of supporting the life of an animal; it ought to be regarded as a valuable accessory, rather than as one of the assimilable and necessary articles of food. In the form of calf's-foot jelly it is a favourite article, used among invalids and others. It is used, too, for the thickening of soups. The gelatine so used is commonly called isinglass and is the sound of sturgeons, dried and cut into shreds. It may not be entirely innutritious, but it does not contain the amount of nourishment jellies are commonly supposed to possess and hence people may be cramming the delicate stomachs of invalids with an almost useless material.

GENTIAN INFUSION. *See* INFUSIONS.

GERMAN MEASLES

German measles, rotheln, or rubella is an epidemic fever with a rash bearing resemblance to that of scarlet fever and that of measles. It is, however, distinct from each, though it is not always easy to diagnose it in the earlier stages. It principally attacks children, though its occurrence among adults is by no means infrequent. As a rule the symptoms are much milder than those of either of the two diseases which it somewhat resembles. It commences with a sensation of chilliness, headache, nasal catarrh, and general malaise. There is a slight rise of temperature. The rash appears either on the first or second day, first on the face, then on the chest, and in the course of twenty-four hours spreads over all the body. The eruption consists of a number of pink spots, slightly raised above the general surface. It generally remains for two or three days, after which it gradually fades, and may be followed by a little peeling of the skin. The treatment of German measles is very simple, and merely consists in keeping the child in bed for a few days, and giving a diet composed largely of milk.

GLANDERS

Glanders or farcy is an infectious disease of the horse, from whom the disease is conveyed to man, usually by inoculation. In the horse the disease is marked by the formation of nodules on the nostrils and beneath the skin. When the nose is principally affected the disease is usually spoken of as glanders, when the skin is primarily concerned it is called farcy. Acute glanders commences with the general symptoms of fever; there is headache, pain in the limbs, and a sense of prostration. There are swelling and redness at the place of infection, and in a few days the lining of the nose becomes ulcerated, and from these ulcers a considerable discharge proceeds. Generally a number of pimples develop on the face and about the joints, and these soon break down into pustules. A form of pneumonia may subsequently develop. Acute glanders is invariably fatal, the patient usually dying within ten days. In acute farcy the nose is not involved, but nodules develop under the skin along the line of the lymphatic vessels. These nodules shortly break down into abcesses. Though not invariably fatal, farcy is rarely recovered from, the patient usually dying in about a fortnight. The only line of treatment is to cut out the infected wound as early as possible, though, at any rate in the acute cases, it is almost hopeless.

GLANDS

The glands are soft, fleshy, organized parts, having arteries, veins, nerves and absorbents, and are designed to separate some peculiar fluid from the blood, which is needed for some of the various operations of the system, or is to be rejected from the body. The process by which such fluids are separated from the blood is called secretion. The glands differ greatly both as to size and shape and in the character of the fluids they secrete. The largest gland in the body is the liver, which secretes the bile. The female breast is also a gland, designed for the secretion of milk. The kidneys also are glands.

Many of the glands, such as the salivary and the pancreas, are only active when certain impressions on the nervous system give rise to a particular condition of the gland, or of its vessels, or of both. Thus the sight or smell, or even the thought of food will cause a flow of saliva into the mouth ; the previous quiescent gland suddenly pouring out its fluid secretion, as a result of a change in the condition of the nervous system.

There are two varieties of glands contained in the skin—the one for the secretion of sweat, called the sudoriparous, or sweat glands, and the other for the secretion of an oily or greasy substance, called sebum, these latter glands receiving the name of sebaceous or sebiparous glands.

GLAUCOMA

This is a disease in which an excess of the fluids of the eye makes the ball tense and hard and exerts injurious pressure upon its delicate contents. In acute cases it is intensely painful and rapidly destroys sight by pressure upon the nerve. In its earliest stages its progress can nearly always be checked by an operation which consists in cutting out a piece of the iris ; but when the nerve is once paralysed the case is hopeless. In no disease are early recognition and treatment more important, and many victims have been condemned to blindness by delay. No one with a violent pain in the eye and head, particularly if it is accompanied by flashes of light, rainbow colours, or dimness of vision, should lull himself into a false sense of security by calling it neuralgia.

GLOTTIS. *See* EPIGLOTTIS.

GOÎTRE

also called Derbyshire Neck and Bronchocele, an obscure affection of the throat, usually showing itself in the form of an enlargement of the thyroid gland in front of the windpipe. Its causation has not yet been definitely ascertained. It is much more common in women than in men, and seldom found in young children. Frequently goître is little more than a fulness or swelling at the throat, though it may rapidly increase in size, during menstruation or disorder of the health. Sometimes removal from the native air and locality suffices to effect a cure and in any case change of scene is a necessary preliminary. Iodide of potassium, either in the form of a mixture (40 grains of the iodide ; one ounce of syrup of orange-peel ; water to eight ounces ; mix and take two tablespoonfuls thrice a day), or a 5-grain tabloid (thrice a day), is one of the best remedies, while the swelling may be painted with tincture of iodine or freely treated with iodine ointment. The goître known as Graves's Disease, or Exophthalmic Goître is characterized by palpitation not only in the heart region, but all over the body, enlargement of the thyroid and great protrusion of the eyeballs, which frequently look as if they would fall out of the head and cannot be wholly covered with the lids during sleep. The belladonna mixture (tincture of belladonna, 15 minims, water to two ounces; mix and take a teaspoonful every quarter of an hour for one hour and afterwards once an hour for a short period) is the most efficacious treatment. The anæmia which so frequently accompanies goître must be treated with one of the preparations of iron.

GOUT

Great difference of opinion prevails respecting the nature, causes and treatment of gout, but it is generally admitted to be, in whatever way it shows itself, a disease of the constitution and, when appearing in a regular form, it must be looked upon as a salutary reaction and evacuation of the system, whereby the equilibrium of the circulation and a comparatively healthy state of the various functions are, for a time at least, restored. It is correctly divided into three varieties, namely acute, chronic, and retrocedent gout.

Acute gout sometimes comes on very suddenly, particularly in its first attacks. In general, however, the inflammation of the joint is preceded by various symptoms indicating a want of vigour in different parts of the body. The patient is incapable of his usual exertions, either of mind or body, becomes languid, listless and subject to slight feverish attacks, especially in the evenings: he complains of pains in the head, coldness of the feet and hands, impaired appetite, flatulency, heartburn, spasms of the stomach and the usual symptoms of indigestion. He is oppressed with heaviness after meals and a disturbed, unrefreshing sleep ensues. The bowels are seldom regular, being either constipated or too much relaxed; the mind at this period being generally irritable, anxious and alarmed at the least appearance of danger. A deficiency of perspiration in the feet also, with a distended state of their veins; cramps and numbness of the feet and legs, and other strange sensations, often presage the approaching fit. The duration of these symptoms, before the fit, is various, sometimes only a day or two, at other times many weeks. The fit sometimes makes its attack in the evening, more commonly about two or three o'clock in the morning. The patient goes to bed free from pain and is awakened about this time by a very acute pain, generally in the first joint of the great toe, the pain often resembling that of a dislocated bone, with a sensation as if hot water were poured on the part. It sometimes extends itself over all the bones of the toes and fore part of the foot, resembling the pain occasioned by the tension or laceration of a membrane. Cold shivering is felt at the beginning of the pain, which is succeeded by heat and other symptoms of fever. The pain and fever increase with much restlessness till about the middle of the succeeding night; after which they gradually abate and, in the most favourable cases, there is little either of the pain or fever twenty-four hours after their first appearance. The patient, as soon as he obtains some relief from pain, generally falls asleep, a gentle sweat comes on and the part which the pain occupied becomes red and swollen. In most cases, however, the fit is not over, for the pain and fever return on the succeeding night with less violence and continue to do so for several nights, becoming less severe till they cease. Such is a simple fit of acute or regular gout. But it often happens that after the pain has abated in one foot, it attacks the other, where it runs a similar course; and in those who have laboured under repeated attacks of the disease, the foot first attacked is often seized a second time, as the pain in the other subsides, which is again attacked in its turn and they are thus alternately affected for a considerable length of time. In other cases it seizes on both feet simultaneously. After frequent returns it begins to seize upon the joints of the hand and at length the larger joints. When the gouty tendency is very great, almost every joint of the body suffers; the pain, when it leaves one, immediately fixing in another. In strong people the fit is generally finished in about fourteen days. In the aged and those who have been long subject to the gout it generally lasts about two months, and in those who are much debilitated, either by age or the long continuance of the disease, it endures till the summer heats set in. In the first attacks the joints soon recover their strength and suppleness; but, after the disease has recurred frequently and the fits are long protracted, they remain weak and stiff and at length lose all motion.

Gout is distinguished from rheumatism by the previous symptoms of indigestion above noticed, which do not occur in rheumatism; by the pains attacking particularly the smaller joints, while rheumatism occupies the larger: by the deeper redness and greater swelling of the parts affected in gout than in rheumatism, and by the age of the patient, his habit of body and mode of living.

Whatever tends to produce an unhealthy fulness of the blood-vessels, hurt the digestive organs and impair the vigour of the system, may be ranked among the causes of gout. Perhaps the principal causes are an indolent and luxurious life, or a sedentary and studious one; hereditary predisposition; anxiety or vexation of mind; excessive evacuations of any kind; cold flatulent diet or immoderate indulgence in alcoholic liquors; the suppression of any accustomed discharge; sudden exposure to cold when the body is heated; wet applied to the feet; costiveness; a variable climate. These may act both as predisposing and exciting causes. It seems indisputable that the more violent the fit and the longer its continuance, the more the gouty disposition is confirmed and the oftener the attack is renewed. A continued imprudence or excess in diet disposes the gout to become chronic and at last retrocedent and to attack the stomach in the enervated and the head in the corpulent.

Chronic gout (which is by some physicians called irregular gout) is the disease of a weakly or debilitated constitution. Here the inflammation and pain are more slight, irregular and wandering than in the acute; there is only faint redness of the affected joint, or no change at all of the natural appearance of the surface; much permanent distension of parts occurs, or continued swelling with impaired moving power; and there are no critical indications of the disease terminating. The symptoms are always associated with a disordered state of the digestive organs, a languid or oppressed circulation and much nervous irritation in the system. The patient is distressed with various uneasy sensations in the stomach, as flatulent distension, craving or deficient appetite, heartburn, etc.; the bowels are either costive or too much relaxed; fluttering sensations are often felt about the heart; the painful sensations felt in the affected part are rather those of heat and coldness alternately, than of the more continued burnings which take place in the acute form of the disease; the spirits are depressed and the mind is very irritable. The subjects of chronic gout are generally such as have for a considerable time laboured under irregular attacks of the acute form of the disease; this, however, is not universally the case, for in some weakly or enfeebled constitutions the gout soon begins to assume the chronic form.

A person with a tendency to gout should avoid veal, pork, goose, turkey, duck, salted, dried, potted or preserved fish or meat (except fat bacon), eels, mackerel, crabs, salmon, lobster, eggs, rich soups, gravies, sweets, cheese, and similar things.

Retrocedent gout is that form of the disease in which the gouty action is suddenly transferred from the joint, or other external part affected to some internal organ, as the stomach, intestines, head, etc.

As to treatment, much may be done both during an acute attack and during the interval. The remedies may be classified under two headings, specific and common, or ordinary remedies. Of specific medication, we have no better example, than the use of colchicum in gout. This remedy, given in full dose, has undoubtedly an extraordinary influence in relieving the gouty paroxysm, but on what principles we cannot tell. Thirty drops of the wine is quite enough for the first dose, and ten drops every four hours afterwards until nausea results, when it should be stopped. This may be done earlier if the pain abates and in no circumstances should its use be continued over four-and-twenty hours without intermission. Usually this will stop the attack, but the practice is not without risk and should not be lightly undertaken. The use of colchicum is often interdicted and recourse must be had to other remedies, which, though less speedy, are more likely to do good in the long run. Chief among these are laxatives and those are best which best unload the portal system without weakening the patient. For this, gentle saline purgatives are best, say, a double-salted seidlitz powder to begin with, and a couple of drams of sulphate of soda and sulphate of magnesia, each with a few drops of dilute sulphuric acid, twice or thrice a day. The effervescing form is, however, the best, as agreeing better with the irritable stomach. These remedies must not be allowed to depress the patient and in some a more comforting draught of senna, rhubarb, aloes and ginger, is to be preferred. Pullna water is a good remedy, but must not be used too freely. One great object is to get the urine to flow freely and get rid of the half-metamorphosed material in the system. Alkalies do good in both ways; they tend to increase the flow of urine and they aid metamorphosis. It is best to give the bicarbonate of potash or lithia effervescing with citric or tartaric acid, along with some aromatic spirit of ammonia and tincture of lavender. If the pain is very great, it is hardly possible to refuse opiates though they are to be avoided as far as possible, seeing that they tend to aggravate the disease by retarding food and tissue change. If opium must be given, then let it be given by the arm, for so less will be required than by the mouth. But before having recourse to that, it is better to try its effects locally. Thus a warm lotion containing acetate of lead and acetate of morphia will often do more good than anything. Extract of belladonna, rubbed up with water and glycerine, and applied warm will often prove of great service. In all cases warmth is the great thing, cold having a tendency to drive the gout to some internal organ. Rest must be absolute and the diet plain. Sydenham pronounced a fluid diluting diet the proper one in a fit of the gout and such a diet is still recommended. Under very acute symptoms, the nourishment must be wholly fluid, unstimulating and rather small in quantity, until the severity of the inflammation, etc., has been subdued and the patient is beginning to recover. The best food for the patient in this stage is bread and milk, light bread pudding, mutton or veal broth, gruel, barley-water and rennet-whey. Roasted apples, grapes and oranges are likewise generally admissible; and when the patient begins to recover, an egg may be added to the above, with half a glass or a glass of white wine, diluted with water and sometimes a little bit of chicken or roast mutton for dinner. It should be particularly noticed that even a small excess or impropriety in diet during a gouty paroxysm always materially aggravates and prolongs the attendant sufferings and sometimes gives rise to severe erysipelas, either in conjunction with the disease, or as an immediate sequel to it. It may be safely assumed, as a general rule, which is rarely liable to exceptions, that when the patient is strong and full of blood and the inflammatory symptoms run high, a spare diet, wholly fluid, is highly necessary. When, on the other hand, he has lived freely; when he has long been subject to attacks of gout, especially when these have shown a tendency to become irregular; when the system has fallen into a state of debility and the inflammatory symptoms do not run high, the diet ought not to be so low, although great caution is still necessary in taking care to increase a little its nourishing qualities without rendering it stimulating. Ripe oranges and grapes are usually admissible during the fit, but acidulated drinks do not generally agree at that period and acid matter must be always avoided, in every shape, during the operation of the calomel purgative pill. Sea bathing is good, so are early hours. The bowels are to be kept open best by Friedrichshall or Pullna water and the urine must be kept right as far as possible by alkalies. A visit to a Continental bathing-place appropriate to the case, is one of the best things we have recourse to. Vichy, Ems, Carlsbad, Wiesbaden, Marienbad, and Aix-la-Chapelle, are the most popular resorts. Several forms of gouty pains, the suffering from concretions about the toe and finger joints and rheumatic agonies, are often promptly and gratefully relieved, as well as very many other pains, thus: rinse woollen flannels in water as hot as can be borne, wring out, fold up in four or five thicknesses and lay on the suffering spot; as soon as possible cover over with a dry, folded flannel larger than the damp one, cover all with a piece of oiled silk to keep in the steam and preserve the heat as long as possible; renew every five or ten minutes, according to the intensity of the pain. There should be two or three sets of flannels, so as to have a hot one on the painful spot all the time, without a moment's intermission.

There is no doubt that a great deal of the virtue which undoubtedly attaches to a course of mineral waters in cases of gout is due really to the water itself. Indeed it is practically certain that nothing has so beneficial an effect on a patient with the gouty diathesis as the regular daily consumption of large quantities of water, preferably hot water. It is a good plan to drink a cupful of hot water on first rising in the morning, another half an hour before dinner, a third the last thing at night, and as much as possible between these times. There seems to be no doubt that meat-eating is largely responsible for many cases of gout. Among vegetarian races the disease is almost unknown. Alcohol, again, should be avoided by every one who has the least tendency to this very painful disorder.

GRAVEL, SYMPTOMS OF

The urinary sand or gravel deposited on the sides or bottom of a receiving vessel is of two kinds, red and white ; and it is of great importance to distinguish the one from the other, as they proceed from different causes and require a different mode of treatment. In red gravel the shade of colour may vary from a reddish-brown, or pink, to a perfect red. Here the urinary secretion is generally small in quantity and high-coloured, and the disease inflammatory : the nearer the deposit approaches to a perfect red, the more severe in general are the symptoms. White gravel is less common, but has long been observed to be attended by very distressing symptoms. They consist in great irritability of the system and derangement of the digestive organs in general. There is often a sallow, haggard expression of countenance ; and, as the disease proceeds, symptoms somewhat analogous to those of diabetes begin to appear, such as great languor and depression of spirits, coldness of the legs and other indications of extreme debility. The urine is invariably pale and voided in greater quantity than usual and, after standing for a greater or less time, always deposits a most copious precipitate of white impalpable powder. In all such cases the urine is extremely prone to decomposition and emits a most disgusting smell. In many persons there is a hereditary tendency to this complaint and in others indolence, or a sedentary life, or an excessive indulgence in fermented liquors and the luxuries of the table, become predisposing causes. But the chief cause seems to be a want of constitutional vigour, especially in the digestive organs. Hence the periods of life in which this disease occurs most frequently are from infancy to the age of puberty and in declining years ; while it is rarely found during the busy and restless term of the prime of life. A cold variable climate often becomes a cause, calculous complaints being seldom met with in warm climates ; and the drinking of hard water often influences very sensibly the state of the complaint.

GRAVEL, TREATMENT OF

The red gravel is by far the most frequent kind of deposit. The most effectual remedies are the alkalies and the alkaline carbonates, such as limewater, the carbonate of potash, or soda and magnesia. But, to be really useful, they must be conjoined with alteratives and aperients ; for it ought never to be forgotten, in the treatment of gravel and stone, that they owe their formation chiefly to a weakened and vitiated action of the digestive organs, which will invariably require this conjunction in order to the accomplishment of a permanent beneficial effect. The diet of persons troubled with red gravel should be moderate in quantity and of a nutritious and wholesome quality, consisting principally of fresh animal food and farinaceous vegetables. All acids and acescent food must be carefully avoided and likewise heavy bread, besides fat, hard-boiled puddings and soups. Soda-water should be the common beverage. Constant active exercise is of great importance in all gravelly disorders and flannel should be constantly worn. Sailors and other persons accustomed to constant and laborious exertion in the open air are very rarely affected with these complaints. In cases of white sand or gravel, an acid is the best medicine and all the acids seem to answer the purpose, though the muriatic, nitric and citric acids have been in the greatest repute. The citric acid or lemon juice is preferable for children, as being the pleasantest and that which may be persevered in for a considerable time ; it may be mixed with water in any proportion that is agreeable. The muriatic acid may be given in doses of from five to twenty drops twice or thrice a day, in four tablespoonfuls of water, and the nitric acid in doses of from five to twelve drops in the same proportion of fluid. The general diet should be nutritious, easy of digestion and moderate in quantity, and be as largely as possible intermixed with acids, salads, fruits and especially oranges and lemons. Water saturated with carbonic acid is the best common beverage in this kind of gravel and, attention being paid to diet and exercise, will sometimes be alone a sufficient remedy. Whether the gravel be white or not, when a small stone passes from the kidneys into the bladder, there is generally a fit of pain and irritation, to relieve which the warm bath or hot fomentations, together with forty or fifty drops of laudanum every three hours, will be the most proper and effectual remedies. The passing of a small stone from the kidneys to the bladder is denoted by a fixed pain in the region of the affected kidney, with a numbness of the thigh on the same side. The pain is sometimes very acute and accompanied with nausea and fainting, but the pulse is rarely accelerated. During the whole of the passage from the kidneys, the urine is usually high-coloured and frequently mixed with blood.

GREEN SICKNESS

See CHLOROSIS.

GRINDER'S ASTHMA

In grinder's asthma, there is first an irritant, barking, dry cough, with a scanty expectoration of white stringy mucus, from simple irritation of the interior of the lungs. This trouble increases in time and the man becomes weaker, loses his breath very easily and breathes with less vigour ; he perhaps begins to spit a little blood. If he leaves his dangerous trade at this point, he will probably recover ; if not, he passes into a third stage where the tissue of the lung breaks down in spots and is expectorated, leaving cavities ; he then suffers from the usual symptoms of consumption, namely, hectic fever, night sweats, loss of sleep, emaciation and great difficulty in breathing.

It is fortunately the case that great relief can be given by mechanical appliances for carrying off the dust formed in the process of grinding. The stone is boxed in and connected with a flue, which rapidly exhausts the air and its dusty contents from the surface of the stone. Several stones can be connected with one common flue in this way. The draught is produced by a fan driven by an engine of eight or ten horse-power. Articles which can be ground wet, as knife-blades, scissors, etc., do not produce this trouble to such an extent ; but the artisan is liable to rheumatism from the wetting of his clothes. Certain articles must be ground dry, owing to the necessity of carefully avoiding rust in the finishing process, as in the case of pins and needles. The more extended use of machinery, however, in grinding has done away with most of the injury from this form of dust.

GRUEL

This is a boiled infusion of the flour of some of the farinaceous seeds or grains, most commonly oatmeal, which, with the addition of butter and sugar, forms a palatable dish for invalids. When made very thin, it is used as a drink and may be considered as a useful diluent, the farinaceous mixture rendering it digestible and allowing it to pass into the circulation. Gruel made with oatmeal is well calculated for the supper of all persons and particularly for the delicate, when it does not become acescent on the stomach. It may be taken with or without milk and with salt or sugar. Nutmeg, or some other spice, should in general be grated into it when it acidulates on the stomach. It may often be taken without producing any such unpleasant effect, if made partly with good beer (which must, however, be pure and wholesome) instead of wholly with water. Dr. Franklin's favourite breakfast was a good basin of warm gruel, in which was a small slice of butter with toasted bread and nutmeg. The expense of this he reckoned at three-halfpence.

GUM

The gum is a thin, compact, tough, elastic, fibrous tissue, enveloping the alveolar processes and surrounding the teeth at their necks. It is continuous with the mucous membrane which lines the inside of the lips and cheeks and the floor and roof of the mouth and, at the necks of the teeth, with the membrane (called the pericementum) which lines their sockets and also invests their roots. In a healthy condition the gum has comparatively little sensibility, bearing without irritation the friction to which it is subjected in mastication. This insensibility is also evidenced by the immunity from pain when the gums are used in chewing by the child before the eruption of teeth and by those who have suffered the loss of their teeth.

GUM ARABIC, EMULSION OF

See Emulsions.

GUM-BOIL

See Boils on Gums.

GUMS, LANCING

See Teething, or Dentition, Difficult.

GUNSHOT WOUNDS

Gunshot wounds of necessity demand the skill of a professional man, whose services should be at once called in. It may be useful to note as temporary expedients that if the wound be attended with profuse bleeding, a tight ligature should be applied above the wound, or a series of compresses and a firm bandage over the wound; and if, as is much more commonly the case in such wounds, there is no bleeding, envelop the whole wounded part in a bread-and-water poultice, renewing it every two or three hours till the arrival of the surgeon.

GYMNASTICS FOR GIRLS

The mistake which sadly diminishes the benefit of gymnastics for girls is that they are too often performed in a close room, or in one wherein the windows are opened for a few minutes only at a time; and statistics show that persons who sit still in the open air, such as street hawkers, enjoy better health, as a class, than those who take plenty of exercise in the house. By some additional trouble and expense this drawback could usually be avoided, and the growing tendency to teach gymnastics in large halls under the direct instruction and supervision of a trained mistress is entirely in the right direction. In these days, when so many women are engaging in intellectual pursuits of a high character and even are desirous of competing with men in the cares and anxieties of professional life, the question of their physical training is eminently entitled to receive adequate attention. In this respect girls stand at a great disadvantage as compared with boys. Up to a certain age, say eight or nine, a girl mixes often on equal terms with her brothers in their sports; indeed not infrequently excels them both in skill and spirit; but after that age healthy exercise is frequently sacrificed to the bondage of genteel deportment. The growing child is confined with stays and her feet are crippled with tight boots. Anything like vigorous muscular movements is thus rendered impossible and the sole exercise is a lazy walk. Owing to this want of functional activity of the muscular system the muscles waste and dwindle and the nutrition of the body becomes impaired. Many of the troubles women suffer from in later life are undoubtedly due to impaired muscular vigour, and much suffering will be avoided by the increased consideration now given in early life to their physical development by a course of systematic training. Hockey, golf, rowing, fives, rackets, and lawn tennis are admirably adapted for girls and young women. To play these games with safety, however, stays and tight boots must be altogether discarded and a special dress worn, as is customary in gymnastic exercises and hockey. Swimming, too, ought to be taught at all girls' schools, not merely because of the protection it affords, but also from its being in itself an admirable exercise, bringing into play all the muscles of the body. Bodily exercise, as well as mental exertion, should be regulated with especial care in young girls about the time of puberty, since the changes of the constitution at that period often render ordinary rules and habits useless or even dangerous. In cases of doubt, medical advice should always be taken in order to avoid laying the foundation of lifelong imperfections of development as a consequence of temporary over-study, over-work, or over-play.

HÆMATEMESIS

Hæmatemesis, or bleeding from the stomach, may result from any one of a number of causes. The two commonest causes are ulceration of the stomach walls and cirrhosis of the liver. In the former case the hæmorrhage results from the ulcer eating its way into a blood vessel, in the latter case it is due to congestion of the stomach consequent on an obstruction of the portal blood system. Even more serious causes are cancer of the stomach, which acts in a manner similar to that of simple ulcer, and the bursting of an aneurysm into the stomach. The blood is almost always vomited, and may be either in a fluid or clotted state. It is very important to distinguish between the vomiting of blood from the stomach, and the coughing of blood from the lungs, as the treatment of these two conditions will naturally differ very materially. In the case of hæmatemesis there is generally a history of stomach or liver trouble, the blood is brought up by vomiting, is usually more or less clotted, and mixed with food, and has an acid character. In the case of the coughing of blood from the lungs, on the other hand, there is usually a history of lung or heart trouble, the blood is coughed up, is unmixed with food, and is usually bright red in colour. Absolute rest in bed is essential in all cases of hæmatemesis. Nothing but liquid food should be given, and even that should be avoided for at least twenty-four hours after the hæmorrhage. After a few days of white of egg and water, milk may be given together with a certain proportion of clear soups or broth. As soon as all pain and tendency to vomiting has ceased, providing at least a fortnight has passed since any haemorrhage has occurred, a liquid diet may be supplemented by a small quantity of farinaceous pudding, custard, a lightly boiled egg, and a little fish.

HÆMOGASTRIC FEVER

See YELLOW FEVER.

HÆMOPTYSIS

Hæmoptysis or spitting of blood is met with in connexion with various heart affections, and with various diseases of the lungs. In certain rare cases, also, hæmoptysis may occur in place of menstruation. As is well known, spitting of blood occurs most frequently in connexion with consumption. As a rule hæmorrhage from the lungs occurs without warning. The patient on coughing experiences a saltish taste, and on examining the expectoration finds that it consists of blood. It is rare that hæmoptysis is in itself immediately dangerous. When, however, blood is brought up in mouthfuls, it is probable that an aneurysm has burst, and the danger is great. The treatment consists in immediately going to bed, and remaining there in perfect rest. Ice may be given to suck. Medicines may be taken to check the cough. The diet should be very light and a smart purge should be taken at the onset.

HÆMORRHAGE, HOW TO ARREST

There are three methods of stopping bleeding with which every one should be familiar :—

1. Pressure at the bleeding point. Blood may often be seen to flow from one small point only of a wound ; slight pressure with one finger, or the ball of the thumb, over the spot, will usually stop it as long as the pressure is kept up, and often altogether, even after the pressure is removed.

2. Pressure on the main artery supplying the wound. To be able to make this pressure on the exact spot requires a knowledge of the distribution of the main arteries of

the body. Where this is wanting, you may apply a roller bandage, as tightly as possible, around the limb above the wound; this pressure must not be kept up very long, as mortification may be produced by it.

3. The application of cold. This plan answers best when the bleeding is from several points scattered over a large surface; it is conveniently applied by letting cold water drip from a sponge on to the bleeding surface, or by the application of ice.

The part from which the blood comes should be raised above the rest of the body and if the patient become faint, he should not be roused immediately, since faintness acts as nature's remedy by lessening the force and activity of the flow of blood.

HÆMORRHOIDS. *See* Piles.

HAIR

The hairs and nails are simply portions of the epidermis, or outer layer of the skin, altered in shape and structure to fulfil the ends assigned to them. But the hairs are situated much more deeply than one might infer from this statement, and the longest and largest of them reach down through the entire thickness of the true skin, or derma; though the finest downy hairs called lanugo are very superficially inserted. With a few exceptions, almost the entire surface of the body is provided with hairs of some sort.

Each hair is divisible into two portions, the root and the free extremity. The root is somewhat pear-shaped; that is, is a trifle larger below than at the surface of the skin, and its tissue is much softer than the exposed portion of the hair; it is, indeed, succulent, in the act of growing. At the deepest portion of the hair-follicle, or cavity in which the hair rests, there is a certain anatomical structure which is of the greatest importance in reference to the growth and vitality of the hair, namely, the hair papilla, This is, of course, quite distinct from the papillæ which cover the surface of the corium, or true skin; it is situated deep in the tissues, at the bottom of each hair-follicle, and projects into a small cavity at the lower end of the hair. This little hair papilla, which is only $\frac{1}{15}$ of a line, or $\frac{1}{180}$ of an inch long, is of vital importance to the life of the hair, there being a minute blood-vessel in its interior, and it is believed that the reproduction of the hair, after it is lost from any reason, takes place from this papilla. Conversely it is also true that as long as this papilla is intact and in a healthy state, the hair will be reproduced, even though extracted artificially.

Plucking out hairs by the root does not destroy the hair papilla in the hair follicle from which the hair grows. Only the hair is removed, the papilla from which it regrows remains. Shaving with the razor only removes the portions external to the skin and at the same time stimulates greater growth. The only successful method to remove hairs consists in the application of electrolysis, and this must be done by a skilled person.

See Dandruff also.

HAND

Of all parts of the frame the hand is one of the most remarkable. There is an endless diversity of operations of which man is capable, which are altogether dependent upon it, and the hand also forms one of the most powerful means of communication with human kind. The human hand is a perfect instrument of prehension: not only can the fingers be bent into hooks, but the thumb can be thrown across the front of the palm, so that it can be opposed to the several fingers and objects can therefore be grasped between it and them; but further, this power of opposing the thumb permits objects to be held in the palm of the hand, which may be hollowed into a cup or made to grasp a sphere. The number of digits in the hand is five, which is the highest number found in the mammalia. They are distinguished by the names of pollex, or thumb, and index, middle, third or ring, and little fingers. Their skeleton consists of fourteen bones, of which the thumb possesses two and each of the other fingers three. Every movement of the hand depends on the contraction of a muscle or combination of muscles.

HANGING

In hanging, the cause of death is the same as in drowning, namely, the exclusion of air from the lungs, or the stoppage of breathing; and not, as some have supposed, apoplexy from a stoppage of the blood in the head. The treatment of a person who has been suspended by a cord round the neck must altogether be precisely similar to that recommended in cases of drowning; except that an attempt may, in the first place, be made to bleed in the arm; or, if a surgeon be at hand, in the jugular vein, with a view to relieving the vessels of the brain, which are, in such cases, probably distended, though not so as to produce apoplexy.

HARMFUL OCCUPATIONS

In dealing with this subject, an attempt will be made to present some of the principal injuries which are inflicted on workmen in various trades by the noxious character of their work. We have first of all to deal with a large number of trades and many striking facts. Amongst those which have excited most sympathy—and which in truth are apt to do so—are those relating to the deadly effects of certain kinds of dust upon the lungs. The form of consumption which is thus produced is apt to begin gradually; though in some trades the artisan will be affected in a few days. It is not what is known as tuberculous consumption, for it is said that it is not hereditary and that workmen who are suffering in its early stage are pretty sure to recover if they change their employment for a healthy one. Many kinds of dust are inhaled, the effects being dissimilar in different trades, which is only another way of expressing the truism that no two trades are alike. The chief poisonous substances used in the arts and inhaled in the form of dust, are mercury, arsenic and lead. But there are a great many other substances which produce poisonous or other deleterious emanations. These are the irritating vapours of ammonia, chlorine and several acids—sulphurous, nitric, hydrochloric and hydrofluoric acids. Etching produces fumes of hyponitric acid when done upon metal and of hydrofluoric acid when done upon glass. Both acids are corrosive: the latter is excessively so and affects the eyes, the air-passages and the hands. Bleaching produces fumes of chlorine gas, which is not injurious in small amounts; nor is the sulphurous vapour from straw-hat bleaching of much consequence. The manufacture of various chemicals is injurious to workmen. Those who make sulphate of quinia are liable to an eruption which resembles eczema, not compromising life or health, but in some cases preventing workmen from continuing at the trade. The manufacture of potassium bichromate disengages caustic vapours, which destroy the mucous membrane of the nose and produce rapid-eating ulcers of the skin. Women suffer more than men from several of the poisons we have named. They not only lose their health more readily, from a greater susceptibility to morbid influences of certain kinds, but their system is more liable to be injured. They are much more susceptible than men to the influence of mercurial vapours and those who are poisoned abort frequently and even the children that are born to them are apt to be weak and sickly and to die early. The infants of female operatives in certain branches of china-making are almost all scrofulous, with an enormous mortality. Lead affects women more readily and more seriously than men. They suffer from excessive flowing at the monthly period and have frequent abortions. It is curious that in towns which are important centres of the manufacture of chemicals, while the fumes given off, even at the summit of lofty chimney stalks, are yet harmful to plant life, the districts in which the factories are situated enjoy remarkable immunity from disease in the case of epidemics. Possibly the micro-organism is unable to exercise any vitality in an atmosphere already affected by other germs of a more or less serious character. The chief practical points in the prevention of disease arising from dust are :—

1. Removal of dust by ventilators, mechanical fans, etc. This is enjoined by law.

2 Wet-grinding, grinding in close vessels, etc., is sometimes practicable.

3. The wearing, over the face, of masks composed of wire-gauze, wire frames covered with tarletan, respirators of carded cotton, etc.

4. If working with poisonous substances, the workmen should wash the exposed parts—face, hands, hair, beard—on leaving work, especially before eating and should never eat in the workroom. After work, they should change their outer clothes, and a daily bath is very desirable in some occupations. To protect from lead and other dusty poisons, a linen suit, frequently washed, may be worn.

HARMFUL OCCUPATIONS, LEGAL RESTRICTIONS ON

The effects of certain poisons on the female sex and on children are so injurious that special laws are required to restrict their employment in manufactures where poisons are used. The restrictions of the Factory Act of 1878 are as follows —No woman, or person under sixteen, shall take meals in any part of glass-works in which the materials are mixed, or where flint-glass is made, or where grinding, polishing, or cutting is carried on ; or in any part of lucifer-match works in which any manufacturing process or handicraft (except that of cutting the wood) is usually carried on ; or in the dippers' room, dippers' drying-room, or china scouring-room, in any earthenware works. There is absolute exclusion from labour in the following cases : girls under sixteen are not allowed to be employed in an establishment where bricks or tiles (not ornamental tiles) are made or finished, or salt is made or finished. No child under fourteen is to be employed in a part of the building where dry-grinding in the metal trade, or the dipping of lucifer-matches, is carried on; under eleven years, all metal-grinding is forbidden, and fustian cutting. Persons under sixteen are forbidden to work at silvering mirrors by the mercurial process, or at making white-lead. Children under fourteen and girls under fifteen are excluded from parts where the process of melting or annealing glass is carried on.

HAY FEVER

One of the most remarkable and not rarely one of the most distressing maladies of summer is hay asthma. This affection, for which a number of different names have been prepared—such as hay fever, eye catarrh, nose cold, typical summer catarrh, catarrhus æstivus, pollen catarrh, pollen asthma—was first fully described in 1819, by an English physician named Bostock, who wrote about it from personal experience, being himself a sufferer. Since his day more and more attention has been given to this ailment and it now finds a recognized place in the systematic books on medicine. It is remarkable by reason of the small number of persons it attacks, the regularity of its annual return—often to the very day or hour—and the fact that knowledge of the cause is much more exact and definite than in most diseases. It is often distressing by reason of the intensity of the symptoms, which frequently confine the patient to his room for days, or even weeks. Recovery always takes place.

HAY FEVER, CAUSES OF

Certain conditions of age, race, sex, dwelling-place, social state, temperament, heredity, are the predisposing causes, which, in combination, render a limited number of persons in any community incapable of resisting influences which are inoperative with the majority, but which in victims produce the disease with the greatest certainty and regularity. These influences are inseparably associated with the summer, from May to September; that is to say, with the time of the blossoming of the grasses and cereals. Bostock thought that the disease was due to heat; others, to dry air with intense light; or again, others, that moist air is the exciting cause of the affection. Dust, also, and the odour of certain plants and flowers, and ozone, have been viewed as exciting causes; but the general experience of medical observers and their patients tends to establish the opinion that the pollen of certain plants and that alone is capable of producing hay asthma. The elaborate and painstaking experiments of Dr. Blackley went far towards confirming the popular view. It is familiar to all that dust, the scent of certain flowers, and volatile principles emitted from the skin of certain animals, such as cats, will produce marked irritation of the mucous membrane of the nose and lungs of some persons; but this is not the disease in question. This may and does happen at all seasons of the year; it is transient in character, vanishing with the cause; it lacks, finally, the intensity, the complexity, the daily revolution and variation produced by hay fever. Dr. Blackley found that pollen—with seventy-four kinds of which he experimented—produced the symptoms of the disease, both in the fresh and dried states. He conducted a series of experiments, with a view to establishing the relative quantity of pollen floating in the air, in different localities at varying altitudes, and the relation between the urgency of the symptoms and the amount of pollen. These observations were extended over two years. The difference in quantity was very great in the two years. In cities the proportion was less than in the country. The greatest quantity was found to coincide with the highest temperature of the season ; the higher strata of air—the experiments were carried into a height of 1,000 feet above the sea level—were found to contain a relatively greater amount, a fact contrary to what one would have supposed. It was observed also, that rainfall and rainy weather diminished the quantity, which was also influenced by the force and direction of the winds. Blackley found that the intensity of the symptoms, in his own case, varied in conformity with the above observations, being greatest when the amount of pollen floating in the air was greatest, aggravated on going from the city to the country, mitigated upon the fall of rain—observations that have been constantly made by sufferers from this affection. It is also in accordance with experience that patients suffer less when quiet than when in motion and indoors than in the open air. The pollen grain, which is of microscopic size, consists of a membranous sac with granular contents. The bursting of the membrane allows the granules to become free : they then exhibit an active movement, which continues for some time. The bursting of the membrane is brought about by the absorption of water or other fluids. In addition to the mechanical effects of these granules in motion upon the surface of the mucous membrane, it has been suggested that some not yet investigated chemical action may take place. The symptoms above described are due to an inflammation of the mucous membrane, with the accumulation of the inflammatory products in the tissue forming it, giving rise to thickening and altered secretion. The duration of the attack is variable, but may be set down as six weeks. It may gradually subside, or may cease as abruptly as it began. Persons who have once manifested the liability to hay asthma and have once had the disease are liable to suffer from it each year, unless they seek refuge in flight from the cultivated region. As yet the most diligent search has failed to bring to light any sure preventive treatment for those who are exposed to these exciting causes. The pollen is capable of being transported long distances and at considerable heights, as was shown by the experiments of Blackley. The sweet-scented vernal grass (*anthoxanthum odoratum*) is supposed by some to be the chief exciting cause of hay fever.

HAY FEVER, SYMPTOMS OF

Hay asthma may be described as a catarrhal affection of the mucous membrane lining the bronchial tubes and the upper air-passages, and that which covers the globe of the eyes and lines the eye-lids (conjunctiva), attended with febrile action and occurring once a year, at the season of the blooming of certain cereals and grasses. The attack lasts a variable time, from a few days to six weeks, and is subject to daily increase in the intensity of the symptoms usually towards evening. It is at once relieved, in the great majority of cases, by removal from the sphere of influence of the exciting cause—the pollen of plants. If the eye and nasal passage be alone or chiefly affected, the symptoms are those of a more or less pronounced coryza ; while if the bronchial tubes be implicated, the symptoms are those of asthma. In many cases these two groups are associated ; and to the swelling and hardness of the eyelids, excessive secretion of tears and the most distressing symptoms of cold in the head, are added the difficult respiration, oppression and general distress of asthma, the whole being reinforced by a slight febrile condition, general malaise and a leaky, chilly and acutely sensitive skin, as in "cold"—certainly no very endurable array of ills. In some cases the patient has urgent difficulty in breathing, is obliged to sit bolt upright, is anxious and extremely restless, with convulsively clinched hands and a disturbed pale or even livid face. But the intensity of the trouble is very variable, not amounting, in some cases, to more than annoying and persistent cold in the head. The first attack may occur in early childhood ; the period of adolescence and early life is most prone to it ; and those who escape to middle life are not apt to become the victims of the disease ; men are much more liable to it than women. The educated classes of society alone suffer from this malady. Doctors are especially liable to it. All observers agree that the class of persons who suffer least from hay asthma is that most exposed to its exciting causes, namely farmers. Whether this be due to their simple life, or to the fact that a constant exposure renders them less sensitive, is as yet undecided. Those resident in rural districts are very much less liable than dwellers in cities. Persons of a strongly marked nervous temperament are more apt to suffer than others. The liability is in some cases hereditary. It prevails, to some extent, in all civilized countries, but is especially prevalent in England and the United States, the Anglo-Saxon race appearing to possess a peculiar susceptibility to the substances which call it forth.

HAY FEVER, TREATMENT OF

The treatment of the affection, when removal outside the region in which the cause exists is not practicable, must consist of palliative measures. Iodide of potassium, and the salts of bromine, arsenic, and strychnine have been found useful. Helmholtz discovered vibriolike organisms in the nasal secretions in this complaint, whose action is arrested by the local employment of quinine. Patients should remain indoors, especially during the prevalence of sunshine, which increases the irritation. Respirators may be worn with advantage. Cold baths and swimming are beneficial and quinine and iron mixture (two tablespoonfuls thrice a day) will be useful.

HEADACHE

Headache takes its origin from a variety of causes and no one remedy will meet all the varying phases. In delicate women it is purely sympathetic ; but the principal and general cause of headache is some derangement of the stomach or indigestion. When sick headache arises from this cause, take a glass of warm water, into which has been stirred rapidly a heaped teaspoonful of salt and kitchen mustard ; and this, by causing instantaneous vomiting, will empty the stomach of the bile or undigested sour food, and a grateful relief often will be experienced on the spot; then rest, with a few hours of sound refreshing sleep, will complete the cure, especially if the greater part of the next day is spent in mental diversion and outdoor activity, not eating an atom of food (but drinking freely of water) until you feel as if a piece of plain bread-and-butter would "taste really nice." Should the headache arise from superabundance of acid in the stomach, two tea-spoonfuls of pulverized charcoal, stirred in half a glass of water, generally give instant relief. For biliousness or bilious headache the blue pill and black draught (or seidlitz powder) should effect the necessary relief.

HEADACHE, HOMŒOPATHIC TREATMENT OF

There are many kinds of headache, excited by various causes and presenting various symptoms, but the most common are headache proceeding from indigestion, nervous headache and sick headache. For the first of these the remedy is nux vomica or pulsatilla; for the second ignatia,and for the third and last, belladonna and ignatia, with ipecacuanha when the headache is accompanied by vomiting. *Dose.*—One drop of the tincture in one tablespoonful of water at intervals of six hours.

HEALTH AND DISEASE, INDICATIONS OF

The tongue used to be taken as a certain guide to the condition of the stomach and other digestive organs and so the indications afforded by it were carefully studied. Though of less value than was supposed, still the signs afforded by the tongue are not to be neglected. The "fur," as it is called, is formed from the scaly covering of the lips and cheeks, as well as from the tongue itself. This is agglutinated by the saliva drying and so gives rise to the furred appearance spoken of. Some people sleep with their mouths open; these have almost invariably an accumulation of fur on the tongue in the morning. This may mean nothing. Again, any irritation of the mouth may give rise to an unusually copious production of this substance and so the tongue is furred. This fur often decays and produces putrid gases, which cannot but be prejudicial to health. When the fur is due to stomach mischief, this is generally of an intestinal or semi-inflammatory character and thus the appearance of the tongue and mouth affords not only valuable means for making out the nature of the disease, but also helps us to some clue to its treatment. The tongue is red, slimy and angry-looking in acute inflammation, dry and black in severe prostration, strawberry-like in scarlet fever, covered with white patches in thrush and furred on the side adjoining a decayed tooth or inflamed tonsil. The alterations in hunger and thirst are often of value in enabling us to come to a conclusion as to the existence and nature of stomachic derangement. There may be loss of appetite (anorexia) with dyspepsia; if so, the malady is generally inflammatory and rather acute in its nature. The opposite condition (boulimia, or voracious appetite) is hardly a sign of dyspepsia, though it does occur. More frequently it is associated with such a malady as diabetes, or the presence of tapeworms. This is different from the craving or sinking feeling often experienced. Eating food repugnant to ordinary appetites (pica) is more a sign of hysteria than of dyspepsia.

Thirst is most common in irritative states of the stomach and then mostly manifests itself some hours after a meal. Of all the symptoms derivable from such sources, thirst and loss of appetite are the most valuable. The clearness of the complexion is considered the best criterion of a man's being in good condition, to which we add the appearance of the under lip, which is plump and rosy in proportion to the plethora of the constitution. This is a much more certain symptom of vigorous health than any indication you can form from the appearance of the tongue or the pulse.

HEARING, HOW CAUSED

It will be sufficient for all practical purposes first to assert that hearing is caused by certain movements in the air that are called sound-waves. Let us follow a wave of sound from its source into the ear and brain, where it is interpreted as sound. Thus we shall learn what hearing is. When a wave of sound reaches the side of the head, part of it is taken up by the auricle and directed more accurately into the external auditory canal. Passing down this at the rate of 1,090 feet and more per second at ordinary temperatures, the wave reaches the drum-head, which is thrown into a to-and-fro motion by the wave. The drum-head imparts this motion to the malleus, which in turn conveys it to the other ossicles, thus causing the entire chain to move in and out, but not to vibrate in the sense that a violin string vibrates. They assume rather what is known as a pendulum-like movement or oscillation. By this means the little foot-plate of the stirrup-bone makes short in-and-out movements or excursions in the oval window which opens into the vestibule. This movement on the part of the stirrup-bonelet is communicated to the water of the labyrinth. Through this fluid the impressions of the sound-wave on the chain of bones are conveyed to the soft part of the labyrinth, where the nerve lies, and it is the perception of this movement in the water of the labyrinth, by the nerve-threads and the brain, which constitutes hearing.

HEART

The heart is the great forcing pump which drives the blood through the arteries, capillaries and veins, through the lungs and back to itself again. It is situated in the chest, behind the breast-bone, but more to the left than to the right side. The lower portion of the heart—the thinner end of it, called the apex—inclines towards the left side, where it may be felt to beat between the fifth and sixth ribs, about two inches to the left of the breast-bone. The heart lies in a bag, called the pericardium, almost surrounded by the lungs, which, along with some other structures, occupy the whole cavity of the chest. The heart may be described as a hollow muscular ball, divided into four cavities by a vertical septum or partition and a horizontal septum. The two upper cavities are called the auricles, the two lower the ventricles. Each of the four cavities is capable of containing from five to six ounces of blood. The walls of the auricles are much thinner than those of the ventricles. The wall of the left ventricle is much thicker than that of the right ventricle. The left ventricle is the more powerful, for it has most work to do, its walls being nearly half an inch in thickness. The auricle and ventricle on the right side are quite separate from the auricle and ventricle on the left side. The right auricle communicates with the right ventricle and the left auricle with the left ventricle through holes about an inch in diameter, which are in the partition between the auricles and ventricles. These are called the auriculo-ventricular openings.

HEART, ACTION OF THE

The action of the heart consists in its contraction and dilatation, and this important organ contracts every twenty-four hours, in a healthy grown person, over one hundred thousand times. Asleep or awake its action goes on constantly.

HEART AND LUNGS, FUNCTIONS OF THE

The lungs are continually giving pure blood to the left side of the heart, while they are as incessantly receiving impure blood from the right side. They are like a person receiving with one hand and giving away with the other. The change the blood undergoes in the lungs is from a dark purple to a light red. Now, if we take the dark venous, or impure, blood from a living animal, we may change it into light blood by passing a stream of oxygen gas through it, or if we take the pure arterial, or light-coloured, blood and pass carbonic acid through it, it will at once become dark-coloured. We thus observe that the change in colour is due to the action of these gases. The red blood globules are the oxygen carriers of the blood and it is in these little bodies that the change in question takes place. The blood in passing through the lungs gains oxygen, loses carbonic acid, becomes 1° or 2° warmer, coagulates or clots sooner and contains more fibrine.

HEART, DISEASES OF THE

Diseases of the heart arise from many causes, as follows :—

1. Traumatic causes, or those caused by external injuries ; falling from a height or from a horse when hunting has ruptured some of the valves and set up heart disease ; a sword wound or stab and a pistol shot would probably prove fatal at once ; sailors are liable to suffer from aneurysm of the aorta and from heart disease from lying on their chests while furling up the sails ; the old-fashioned tight military stock and the old way of wearing a knapsack tended to disease by preventing a ready flow of blood through the vessels.
2. Inflammation may take place in the pericardium, or endocardium, or in the muscular wall of the heart.
3. Atheroma of the valves or lining membrane of the aorta may occur ; this comes on in old age and in those who have lived hard or been badly fed ; it consists of a fatty change which comes on in the tissues in consequence of want of nourishment.
4. Calcification of the valves is often associated with the last change and consists in the deposit of lime-salts from the blood in parts in which living changes have ceased to exist.
5. Fibrous thickening of the valves may occur and cause constriction of the orifice and in that way obstruct the passage of the blood.

In all cases of heart disease, the best medical advice should be obtained. They are much too serious for domestic treatment.

HEART, PALPITATION OF THE

See Palpitation of the Heart.

HEART, SOUNDS OF THE

Speaking of these, Dr. James Foulis said : " If you place your ear over the heart of a man and listen attentively, you will first of all feel the beat or the impulse of the heart. The top, or the apex, of the heart strikes the wall of the chest between the fifth and sixth ribs whenever the ventricles contract, and at the same time you will hear two very peculiar sounds, which are called the heart's sounds. The sounds follow each other quickly and may be closely imitated by the words *lubb—dupp*. These two sounds are succeeded by a pause and then we hear them again. You hear the first sound when the ventricles contract. It is supposed to be produced by the flapping together of the valves at the right and left auriculo-ventricular orifices ; and the second, or 'dupp' sound, is supposed to be produced by the flapping together of the valves at the orifice of the aorta and pulmonary artery."

HEARTBURN

This ailment is also known by the name of waterbrash. There are patients into whose stomachs, when empty, there is poured out a vast quantity of transparent liquid, sometimes tasteless, sometimes sweet, sometimes acid, or of an acrid taste. The complaint is more common in women than in men and exists in every degree of severity or mildness. When the quantity of liquid formed is considerable, great exhaustion often follows. It is commonly unproductive of pain and is thrown up without nausea, the mouth filling spontaneously with the liquid, which rises without an effort, or as in animals chewing the cud. Sometimes, however, it is the reverse and the patient suffers very violent pain at the stomach, which is only relieved upon her bringing up in the same manner a pint or more of limpid and perhaps tasteless fluid ; this may happen three or four times in the day. The complaint appears to arise from a low degree of inflammation of the glands of the stomach, which become slightly swollen and pour out a more or less altered mucus, which is the waterbrash. It is a sort of relaxed inflammation, and accordingly is cured by astringents. The number of persons suffering from heartburn, or waterbrash, is very large. In a ladies' seminary it was once asked how many suffered more or less from heartburn and more than half the hands went up. It is a very common affection and is the preliminary to graver forms of indigestion. It should not be treated either with indifference or alkalies, but by the observance of the following suggestions: avoid tea and soups; drink nothing at your meals ; say " No, thank you " to the pie and cake and go without your supper.

HEARTBURN, TREATMENT OF

" The means," says Dr. Lewis, " most commonly employed by the ignorant in the treatment of heartburn is the use of some alkali to neutralize the acid. A little soda, for example, relieves the sufferings at once. But this chemical remedy is not a good one, for it seems in some way not, perhaps, easy of comprehension, to ensure a return of the malady. Strange to say, the opposite course appears to be more successful, namely, the employment of small doses of acids. I have known persons who had suffered long from waterbrash cure themselves by the daily use of a little vinegar, or a few drops of lemon juice after each meal. A college student consulted me during his junior year for a most distressing heartburn. It seemed to me a case in which a cure might be effected on the homœopathic law and I prescribed twenty drops of lemon-juice to be taken at the close of each meal. He called upon me several months afterwards to say that it not only had cured him, but that he had resolved himself into a doctor among his fellow-students who happened to suffer from heartburn, and that lemon-juice was known as a good remedy throughout the whole institution. I must not omit to mention that I advised my patient not to drink anything at his meals, nor within two hours after eating. He had, in prescribing the lemon-juice for pyrosis, been careful to urge the omission of drinks at and immediately after meals and likewise the avoidance of soups. In fact, sufferers from the malady under consideration may obtain relief by a dry diet. The saliva, which is alkaline, affords some relief in cases of heartburn. I have, for a good many years, been in the habit of advising my patients who might be temporarily afflicted with heartburn, to chew spruce gum and swallow all the saliva. It affords the most grateful relief and is not open to the same objection which may be urged against soda, saleratus and other strong alkalies. Of course the cure of this affection is to be sought in the discontinuance of the table errors which produce it. It is not easy, in round terms, to say what these errors are. But the discontinuance of drinks at meal-time and of liquid foods will generally afford relief. It may be necessary to discontinue pastry, fat meats and butter. It would be a rare case that did not give way at once under a beef and bread diet, drinking only water, and that, so far as practicable, on rising in the morning and lying down at night. At these times it may be taken *ad libitum.*"

HEARTBURN, TREATMENT OF, FORMULÆ FOR

The following formulæ are appropriate in the treatment of heartburn: Ten grains of kino, with a third of a grain of opium, taken in water three times a day; or three grains of alum and five of kino, so taken; if the fluid thrown up is acid, an alkali should be combined with the astringent. An agreeable effervescent drink for heartburn, which is highly recommended, is to mix the juice of one orange, water and a lump of sugar in proportion to the acidity of the orange, and then add about half a teaspoonful of bicarbonate of soda; stir and effervescence will ensue.

HEART-STROKE

See ANGINA PECTORIS.

HEAT- AND FORCE-GIVING FOODS

These consist chiefly of starch, sugar and fat. At the same time they may be divided into two groups. The starch and sugar have the following composition:—

Carbon . . .	12 parts.
Hydrogen, 9 Oxygen, 9 . . }	Water, 18 parts.

In fact, they contain oxygen and hydrogen in the proportion in which these elements form water, and when taken the carbon is alone oxidized and forms the heat-giving element. It is different with fat and oleaginous foods. Their composition is as follows:—Carbon, 11 parts; hydrogen, 10 parts; oxygen, 1 part. Not only the carbon, but a large part of the hydrogen is thus left free to be oxidized by the oxygen taken in during respiration.

HEAT, INFLUENCE OF

With regard to the influence of heat on the human system, we have to bear in mind that exposure to intense heat, especially but necessarily that from the direct rays of the sun, is liable to produce sunstroke. The faintness, giddiness and insensibility have been shown, by ingenious experiments, to be the immediate effect of heat upon the brain surface; and in order to escape this enemy of health and long life, exposure to the sun's rays in very hot weather should be avoided. Wearing a wet handkerchief or sponge, or even a cabbage leaf in the crown of the hat, is a useful precaution against sunstroke; and when slight giddiness or weakness, with heat about the head, comes on and indicates an approaching attack of serious character, the patient should be at once removed to a cool, shady place and the head and neck and chest gently rubbed with small pieces of ice, so as to reduce the temperature to the natural degree of 98·4°F. Persons with delicate skins soon learn to save their face and hands from being blistered in the sun by exercising the wisdom of the adage, "A burnt child dreads the fire." Upon infants and young children summer heat is very apt to exert an unfavourable effect in promoting diarrhœa and cholera infantum.

HEAT OF BODY REDUCED BY PERSPIRATION

The sagacity of Benjamin Franklin led him to the first discovery of the use of perspiration in reducing the heat of the body and to point out the analogy subsisting between this process and that of the evaporation of water from a rough, porous surface, so constantly resorted to in the East and West Indies and other warm countries, as an efficacious means of reducing the temperature of the air in rooms and of wine and other drinks much below that of the surrounding atmosphere. The quantity of fluid evaporated from the skin during profuse sweat so far exceeds that given out during the highest insensible perspiration that two pounds in weight have been lost by this means in a couple of hours—an amount sufficient to carry off the largest quantity of superfluous animal heat which can ever be present. In the performance of this function the skin is, indeed, assisted by the exhalation from the lungs; but as both act on the same principle, the explanation is not affected by this circumstance. In very warm weather the dog is always seen with the tongue lolling out of his mouth and copiously covered with frothy secretion. This is merely another modification of the means used for reducing animal heat. The dog perspires very little from its skin and the copious exhalation from the mouth is the expedient resorted to by Nature for supplying its place.

HECTIC FEVER

Hectic fever is that fever which so generally arises in consequence of some very severe or incurable local disease of a vital part, as the lungs, heart, stomach, etc., or of a common part, when of some magnitude. This fever is well marked in the last stage of consumption. In these cases it is a symptomatic affection, produced by the constitution's sympathizing with a local irritation, which it is incapable of overcoming, and this is its most common course and character. But it is now and then an original disease, the constitution falling into the same mode of action without any local cause whatever.

HECTIC FEVER, SYMPTOMS OF

The general symptoms are those of a slow fever, attended with weakness. The particular symptoms are debility ; a small, quick, sharp pulse ; loss of appetite ; pallid countenance ; wasting ; a great readiness to be thrown into sweats ; sweating spontaneously when in bed ; generally a red deposit in the urine. The chief increase of this fever begins about five o'clock in the afternoon, often with slight chills, which generally continue for some time after the skin, to the feeling of another person, is warmer than natural. This increase continues till after midnight, the pulse being seldom under 110 and often above it. About one or two o'clock in the morning a sweat appears, which often becomes profuse and is chiefly on the upper parts of the body. The perspiration relieves the feverish symptoms and as the morning advances the remission becomes more distinct. In some cases this remission continues till about five o'clock in the afternoon, when the increase again begins ; in other instances there is a slight increase about noon.

HECTIC FEVER, TREATMENT OF

When the disease is evidently symptomatic, the object is to cure, or, if incurable, to remove, when this can be accomplished, the part affected. When original, we must combat the existing irritability and, above all things, endeavour to strengthen without increasing the action of the system. The vegetable and mineral acids appear to be the best sedatives, as well as tonics, in hectic fever and it is owing to these properties that they are often of so much value in pulmonary consumption. They abate the feverish heat, diminish the restlessness and frequently succeed in checking the night sweats. The vegetable acids can be taken in larger quantities than the mineral and are therefore frequently preferable, especially lemon, lime, or orange juice and distilled vinegar. If the patient is tormented with pains in the limbs, resembling rheumatism, the acids should be combined with opium, and a bitter tonic.

HEIGHT IN RELATION TO WEIGHT

Weight is as important an indication of the general condition of the human body as any other evidence and many physicians make a practice of weighing their patients periodically. The habit of being weighed has become almost an amusement and in railway stations, shops and many places of recreation weighing machines are to be seen in constant request. To know the correct weight of any person without reference to height is of very little use ; so considerable pains have been taken to frame a standard which should indicate the proportion which weight should bear to height. Dr. John Hutchinson collected the height and weight of upwards of 5,000 persons. His list, however, included persons who exhibited themselves as giants and dwarfs and other exceptional cases. He, therefore, reduced his instances to 2,650 persons, all of whom were men in the prime and vigour of life, and included sailors, soldiers, firemen, policemen, draymen, gentlemen, paupers and pugilists. This group of cases was intended to make one class a set-off against another, so as to get a fair average. The following was the result of Dr. Hutchinson's observations :—

Height.		Weight.	
ft.	in.	st.	lb.
5	1	8	8
5	2	9	0
5	3	9	7
5	4	9	13
5	5	10	2
5	6	10	5
5	7	10	8
5	8	11	1
5	9	11	8
5	10	12	1
5	11	12	6
6	0	12	10

Of course the result of these observations can only be considered as approximate, but they are sufficient to show that among healthy men there is a definite relation between height and weight.

HEMIPLEGIA

(Greek, **hem'i**, " half " ; **pleg'e**, " stroke ").

Among the various distortions to which parts of the human body are subject, the simplest, perhaps, is that which is known as hemiplegia or " drawn mouth." It arises in this way : In consequence of an extravasation of blood, or some other cause, the functions of one side of the brain are interrupted ; the muscles of the cheek on the same side, deriving their nerves from that part of the brain, are paralysed, and the retractors of the opposite angle of the mouth, being no longer balanced by an equal force, draw it up towards their origin and retain it in that position. The left side of the body is more often affected than the right. When but one limb is involved, this is usually the arm. In applying the hot brick or hot-water bottle to the sufferer's feet, care must be taken not to blister or scald them, for though the patient will feel no pain, it is a strange fact that the palsied parts are more sensitive to the influence of heat and cold than are the sound parts. Generous feeding and tonics will be required, but it is desirable that all cases of paralysis should be dealt with by the doctor.

HEMLOCK POULTICE

See POULTICES.

HERNIA

By this term is meant any protrusion of the contents of a cavity through its walls. But in general the term is applied to the protrusion of the abdominal viscera, constituting rupture. The predisposing cause of hernia is a weakness in the walls of the abdomen. The exciting cause is compression of the contents of the abdomen by the surrounding muscles, which are very powerful, and are brought into violent action by rowing, lifting weights, pulling, etc. Pregnant women should be extremely careful to avoid all exercise likely to throw a strain upon the abdomen. Even the lifting of a coal-scuttle, or reaching up to hang up clothes on washing day has resulted in single or double rupture. Hernia is divided into the following varieties—reducible, irreducible and strangulated.

HERNIA, IRREDUCIBLE

By the term irreducible is meant that form of rupture where, from some impediment in the canal through which it passes, it cannot be replaced in the abdominal cavity. If an irreducible hernia be neglected, it produces many inconveniences, abdominal pains, vomiting and general intestinal disturbance, and the contents of the bowel may be obstructed in their natural passage, causing colic and constipation while the chance of the bowel becoming strangulated at that point is greatly enhanced.

HERNIA, IRREDUCIBLE, TREATMENT OF

The treatment of irreducible hernia must be either palliative or radical; the palliative measures being the application of a bag truss and the avoidance of all violent exertion or excess in diet. The radical proceedings are, of course, only to be attempted by an experienced surgeon.

HERNIA, REDUCIBLE

By reducible hernia is meant one returnable into the abdominal cavity. Its symptoms are the existence of a compressible tumour in the abdominal walls, which lessens in size if the patient lies down, or disappears altogether, receives an impulse on coughing or on any exertion being made and can be readily returned by pressure.

HERNIA, REDUCIBLE, TREATMENT OF

This form of hernia can be treated either palliatively or radically: the first by means of trusses and the second by operations for the closure of the aperture through which the rupture passes.

HERNIA, STRANGULATED

By the term strangulated hernia is meant that a portion of intestine being protruded, there is a total stoppage of its contents, so that they cannot be propelled towards their natural outlet and, moreover, that the structure of the bowel itself is so constricted that it is itself strangulated.

HERNIA, STRANGULATED, SYMPTOMS OF

The symptoms of this condition are—firstly, those of obstruction of the bowels; secondly, those of inflammation. The individual has flatulence, tightness over the belly, a desire to evacuate the bowels and an inability to do so. Next, vomiting supervenes, in the first place of the contents of the stomach, of bilious matter, and then of matters smelling strongly of fæces, in consequence of the ingesta being detained in the intestinal circuit.

HERNIA, STRANGULATED, TREATMENT OF

When a patient is found to be suffering from this variety of hernia, operative interference is necessary, and that at once; although, until such aid is at hand, some assistance is to be derived from what is termed taxis, from which, even in unprofessional hands, if properly directed, good results may ensue. The patient should be placed in a warm bath and both the thighs be raised towards the belly and placed close to each other, as a means of relaxing all the muscles and ligaments connected with the abdomen; he should be engaged, if possible, in conversation, so as to relax the respiratory muscles. Next, the visible tumour should be grasped gently with one hand to empty it as far as possible, and with the other the neck of the tumour should be kneaded, with a movement towards the abdomen. This operation should be continued for some time. a quarter of an hour or so, if no great pain is produced by so doing, at the end of which time, if the proceeding be successful, a slight gurgling sound will intimate the return of at least a portion of the tissue. In some instances, raising the pelvis and lowering the shoulders have proved effectual. Chloroform is a great aid in the reduction of such a hernia. A hot bath (96°–100° F.), a large dose of opium, an enema of tobacco, a drachm to a pint of boiling water, cold, in the form of ice, or of a freezing mixture placed in a pig's bladder and applied over the swelling may all be tried. In the event of these milder remedies failing, a surgeon must perform an operation to relieve the constriction.

HERNIA, UMBILICAL

Umbilical hernia, or exomphalos, is most frequent in newly-born children and presents itself as a protrusion at the navel. A flat disc of metal, or even a penny piece, well covered with lint or linen, retained against the protrusion with a strap of plaster will retain the hernia. Excessive crying of an infant may produce a form of hernia, and this condition should therefore be watched for in the case of all such babies.

HERNIA, VENTRAL

Ventral hernia is a protrusion of bowel through the abdominal walls in the mesial line, or through any parts of the parietes which are not usually the seat of otherwise named hernia. There are several other forms of hernia which protrude themselves through those natural openings in the pelvic or abdominal walls which serve to transmit muscles, vessels and nerves to the limbs. In these and other instances of hernia it is essential that medical advice should be obtained without delay.

HERPES

(Latin, **herpes**; from Greek, **herpo**, "I creep").

This form of skin eruption is also known as "shingles," or "water-blisters." It is less common than acne, eczema and other affections of the kind, which together make up about three-quarters of all the cases of skin diseases presenting themselves for treatment. The older definition of herpes related to an eruption which crept or increased peripherically and the term was in former times applied to a number of eruptions. It is now restricted to a single form of skin disease, namely one characterized by the presence of flat vesicles, generally grouped together in a peculiar way.

HERPES, SYMPTOMS OF

The most common variety of this disorder is what is known as herpes zoster, zona, or "shingles"; also as ignis sacer, or zona ignea. In this the disease is limited to one side of the body, extending horizontally from the middle line behind to the middle line in front, and consists of groups of flattened vesicles with a certain amount of redness and tenderness of the skin between. Sometimes, when this attacks the region of the arms or legs, it runs down the limb; on the head it may occur over the eye, or about one ear, or on one side of the neck. The eruption is attended with very considerable pain in many cases, especially in older subjects. Some cases, formerly or wrongly called "erysipelas" of the head or face, are now known to be this affection. The causes of this acute inflammation of the nerve-trunk and the resulting inflammation of the skin are not always determined. Generally the exciting cause is cold; but, strange to say, it is extremely common for a person to have this eruption a second time.

HERPES, TREATMENT OF

The treatment of herpes is generally of a simple character. The general health should be improved in every way possible, and tonics are often useful in assisting to this end. Soothing ointments should be applied to the affected parts, and they should be protected from the air. Herpes zoster or shingles is a more difficult disease to treat, and in many cases proves very intractable. The affected part should be bathed and fomented with hot water, which should be followed by a thick dusting of starch powder, with a little oxide of zinc and camphor. The part should be covered with a thick piece of cotton-wool, so as to exclude the air.

HICCOUGH

This consists of a short, abrupt contraction of the diaphragm and a sudden, jerking, imperfect ejection of the breath. Most frequently it is purely emotional, brought on no one knows how, and very often it may be got rid of in the same way by frightening the individual, by exciting the curiosity and so removing the attention from the hiccough. A draught of cold water or sucking a piece of ice will generally get rid of this nervous form of the affection. A writer in a leading periodical once related how, while dining at a friend's house, one of the party was attacked with hiccough, which was cured in a novel way. A knife was put into a glass of cold water and then he was told to drink a drop or two of the water slowly, looking at the same time at the point of the knife under the water. The cure was immediate. A variety of hiccough is not uncommon in hysteria, when it may continue for a very long time, apparently resisting every remedy. The application of the galvanic battery to the region of the diaphragm will in most cases put a stop to this hysterical kind. There is a form of very grave origin, however, when gangrene of any part sets in, but especially gangrene or mortification of the gut. This proves very troublesome and in some instances it is a fatal symptom.

HIP, DISLOCATION OF THE

The head of the thigh-bone may be dislocated in four different directions, namely, upwards and backwards, on the ilium ; downwards, into the foramen ovale ; forwards on the pubis ; and backwards, on the ischiatic notch. It can only be treated by a medical man.

HIP, DISLOCATION OF, BACKWARDS

In this case, the head of the thigh-bone is placed behind its natural cavity and a little above its middle; the limb is generally not more than half an inch shorter than its fellow ; the knee and foot are turned inwards, but not nearly in so great a degree as in the first kind of dislocation ; the thigh inclines a little forwards ; the knee is slightly bent and the limb is so fixed that flexion and rotation are in a great measure prevented.

HIP, DISLOCATION OF, BACKWARDS, TREATMENT OF

The pelvis being fixed, the extension is to be made downwards and forwards, across the middle of the other thigh, so as to dislodge the head of the bone, while the operator, with a napkin placed under the upper part of the thigh, just below the trochanter minor, pulls the upper part of the thigh-bone towards its proper cavity. In this case, pulleys are preferable for making the extension.

HIP, DISLOCATION OF, DOWNWARDS

This is next in frequency to the preceding dislocation. Here the injured limb is two inches longer than its fellow ; the thigh is flattened ; a hard, round tumour, formed by the head of the thigh-bone, is felt at the inner and superior part of the thigh and the knees are widely separated from each other. In this instance the head of the bone occupies the obturator foramen. The symptoms of this dislocation are lengthening of the limb with pointing of the foot downwards.

HIP, DISLOCATION OF, DOWNWARDS, TREATMENT OF

This kind of laxation is very easy of reduction. The pelvis having been fixed, the necessary extension is to be made downwards and outwards, so as to dislodge the head of the bone. The muscles then generally draw it into its natural cavity, on the extending force being gradually relaxed, if the upper part of the bone be pulled outward, with a bandage, and an assistant at the same instant inclines the ankle inwards. Then the limb is used as a lever, with very considerable power. Manipulation may be tried as in the former case, only rotation must be made inwards, instead of outwards.

HIP, DISLOCATION OF, FORWARDS

The thigh-bone is occasionally dislocated forwards, or upwards and forwards on the pubis, when the whole limb is turned outwards and cannot be rotated inwards; it is shortened by one inch; the head of the bone forms a tumour high in the groin and the knee is generally carried backwards. In this instance the head of the bone rests upon the pubis. There is shortening of the limb; the foot and knee are turned out and the head of the bone can be felt upon the pubis.

HIP, DISLOCATION OF, FORWARDS, TREATMENT OF

The treatment of this injury only differs from that just described in the extension being made in a line behind the axis of the body, so as to draw the thigh-bone backwards; and when such extension has been continued for some time, a napkin is to be put under the upper part of the bone and its head lifted over the edge of the cavity into which it is to go. In this form of dislocation the head of the thigh-bone is resting upon the pubis, and to reduce it the patient requires to be placed on his back with his leg extended in a downward and backward direction. Counter-extension is kept up by means of a band placed between the thigh and perineum.

HIP, DISLOCATION OF, UPWARDS AND BACKWARDS

In this case the limb is from one inch and a half to two inches and a half shorter than its fellow; the thigh a little bent and carried inwards; the knee inclines more forwards and inwards than the opposite one; the leg and thigh are turned inwards; the foot cannot be turned outwards and the natural roundness of the hip has vanished. In this form of dislocation the head of the thigh-bone is driven upwards and backwards upon the dorsum of the ilium. The knee and foot are turned inwards and the toes rest on the upper part of the tarsus of the opposite foot.

HIP, DISLOCATION OF, UPWARDS AND BACKWARDS, TREATMENT OF

The body of the patient must be first fixed by passing a strong belt or roller, etc., round the pelvis or hips, the ends being carried over the hip of the sound side, where they are either to be firmly held by assistants, or confined to some immovable body. A second belt is to encircle the dislocated thigh-bone, immediately above the knee, and with this extension is to be made in the direction of the line taken by the limb, when it is brought across the other thigh a little above the knee. As soon as the head of the bone has been brought on a level with the cavity into which it is to be returned, by the assistants, who are making the extension, the surgeon is to force it into the cavity by pressing on the large protuberance of the bone called trochanter, which every one feels on putting their hand on the side of the hip ; or the knee and foot may at this period be gently rotated outwards. A more simple method may be tried in the first instance, namely, bend the leg upon the thigh and the thigh upon the abdomen and rotate outwards and extend, when the head of the bone may be brought into its socket.

HOMŒOPATHIC MEDICINES, PREPARATION OF

These are supplied in two forms, namely in globules or pilules and in tinctures, the latter form being considered preferable. Soluble drugs are prepared homœopathically by what is termed succussion or shaking ; that is to say, a mode of treatment which effects the dispersion of a drug through liquid, generally alcohol, until the drug is equally diffused throughout the whole of the liquid ; and insoluble drugs by trituration, or rubbing up in some vehicle, generally sugar of milk, until the whole of the vehicle used is equally and thoroughly permeated by it. Thus it is that every individual globule or drop in medicine homœopathically prepared is of equal strength with its fellows. The potency of such minute subdivisions is ascribed to the extension of surface brought about by succussion or trituration, as the case may be. It is argued that the active power of any drug is enormously increased by this so-called extension of surface and, as a grain of gold leaf one inch square may be hammered out into a thinner leaf ten inches square, its surface being thus increased a hundred-fold, so mercury, for instance, has its active properties marvellously increased by rubbing it up with some vehicle so as to procure its equal subdivision or, in other words, extension of surface. It is, then, from this extension of surface that homœopathic medicines derive their power and active properties. Evidence of this is obtained from the fact that the nutritive properties of the soil are brought into a better condition for their reception and assimilation, as plant food, by plants by the action of the frost, which breaks up the earth into minute pieces, setting free its various constituents by subdivision of matter. Now this is simply increasing the active properties of the soil by extension of surface.

HOMŒOPATHY DEFINED

In order to arrive at a correct idea of what Homœopathy is, it is necessary first of all to ascertain the meaning of the word itself and to understand why it is used to designate that form of medical practice to which it was applied by the founder of this system of medicine, Dr. Samuel Hahnemann, who first announced his discovery to the medical world in 1796. Theory, generally speaking, forms the basis of practice in every art and science, and in no science is this more perceptible than in the science of medicine. Thus in medical practice it has arisen that there are two great and opposing schools of medicine each of which is based on a widely different theory ; that of the ordinary medical practitioner being *Contraria* *contrariis curantur*, a sentence in Latin which means "Opposites are cured by opposites"; and that of the homœopathic practitioner, *Similia similibus curantur*, another Latin sentence which means "Likes are cured by likes." Going a little deeper into the matter, the first of these sentences implies that in the treatment of any disease, be it what it may, drugs should be used which will produce in the body of the patient a condition opposite to that induced by the disease to be cured, or, in other words, that it is needful to counteract the disease and arrest its progress by the administration of medicines that will produce effects different from those resulting from the disease itself. The second, on the contrary, implies that in the treatment of any disease, be it what it may, drugs should be used which would produce in a healthy person symptoms resembling or like to those occasioned by the disease by which the patient is affected. Hence Hahnemann was led to apply to the generally accepted mode of medical treatment the term Allopathy, from two Greek words, *allos*, "another," and *pathos*, "suffering"; and to his own method the term Homœopathy, also from two Greek words, *homoios*, "similar" or "like," and *pathos*, "suffering." Thus Allopathy implies that mode of medical practice which consists in using drugs to produce in the body a condition opposite to the disease to be cured, and Homœopathy a mode of treating diseases by the administration of medicines capable of exciting in healthy persons symptoms closely similar to those of the disease for which they are given.

HOOPING COUGH.

See Whooping Cough.

HOT APPLICATIONS

The readiest ways in many cases to apply heat is by hot-water bottles. Roll them in flannels or thin towels; and should the patient be suffering from shock, or insensible from any cause and consequently not able to complain, keep a watch against blistering the skin. Bags of sand or salt, bricks, flat-irons, tins, tin plates, etc., are all useful in emergencies to supply heat. Make them very hot and roll them in towels before applying. Hot flannels are often applied to the stomach to allay pain. Fold a flannel in a long towel and lay it across a basin; pour boiling water over it and then, taking the towel by both ends, wring it as dry as possible. Shake the flannel up a moment to take in air, which will help in keeping the heat and apply over the part; cover with an oil-silk.

HOT-WATER BOTTLE

Some persons in cold weather use a hot-water bottle in bed, upon which they put their feet and by this means restore the circulation which had been previously impeded; but the disadvantage of this process is that it renders the feet more delicate and more sensitive to cold at other times, and when once accustomed to a hot-water bottle a person cannot sleep without it. Another plan is to procure a common earthen tile and, having rubbed the edges smooth, to have a flannel bag made to fit it loosely; then, about an hour before it is wanted, to warm it in the oven, place it in its bag, wrap the bed-dress round it and put it into the bed. It will contain sufficient heat to warm the sleeper, without injurious effects, and is very portable, cheap and convenient. The real advantage of either the hot-water bottle or heated tile or brick is in taking the chill off the sheets. If confined to this purpose, there can be no objection to its use, but it is unwise to bring the feet into contact with the vessel.

HOUSE, HEATING THE

Contrivances which provide for the admission of warmed air into a room and so utilize a great deal of the heat that is lost with the ordinary fireplace are much to be recommended. Slow-combustion stoves, in which coke is consumed, are not suitable for dwelling-rooms, even when air is admitted into the room through them. They dry the air too much and also cause an unpleasant smell from the partial burning of the organic matter in the air. Although the products of combustion of most lights must be allowed to escape into the air of a room, those of gas should be conveyed away by pipes made for the purpose, which may also be made to serve as extractors of air. Gas should be much more used for heating and cooking purposes than it is and gas companies encourage the practice by letting out stoves on hire. The way in which we use coal in our fire-places, thus destroying all the valuable substances—tar, carbolic acid, ammonia, the aniline colours, etc., that are prepared from the residues of the manufacture of gas—is absurd. Where several gas-stoves are used, however, it is necessary to have a special supply pipe. There should be a thermometer on the outside and inside of every regularly-occupied room (on the inside five feet from the floor) to give some idea of the degree of warmth to the occupant. The difference between in- and out-door air is often thirty or forty degrees or more ; and a person not knowing this fails to provide extra dress, becomes chilled, and the next thing is a hoarseness or bad cold, or sore throat, if not pleurisy or some form of lung disease, rheumatism, asthma, or influenza, which may be an annoyance for weeks, or even months. During winter the temperature of passages, staircases and bedrooms not specially warmed will range from 50° down to 40° F. and even much lower. At such temperature out of doors and while in active exercise, men put on their overcoats and thick gloves, women wear warm cloaks and furs. At these temperatures indoors we go shivering in thin clothing, change the warm for the cold and allow children to run about more nearly naked than they would do in the warmer climate of France in August. It is as if a whole section of the population were training for an Arctic voyage, although they may be confident that the vast majority of them, all except the idle, the extravagant and the unfortunate, will be more able to keep themselves in comfort as time goes on. Victims of this infatuation plead that they were always taught when young to harden themselves and to avoid "coddling" in the house. But the ancestors of these townsfolk were countrymen, sportsmen, Highlanders, tillers of the soil, who lived out of doors and would have despised our sedentary habits, small fires and evening dress. Now the middle class stands alone in doing these things, for neither the rich nor the poor submit to them. The former try to warm their houses throughout, making every part habitable; the latter spend a large part of their money on the fire, papering up every hole and crevice and almost stifling themselves, not, as is absurdly said, because they hate fresh air but because they hate draughts.

HOUSE, NEW, PRECAUTIONS WITH

Every new house or newly-plastered house should be allowed ample time to dry before it is occupied. Innumerable attacks of sickness have arisen from ignorance of this fact. Von Pettenkofer, well known as one of the greatest sanitarians, calculated that the walls of a house containing one hundred thousand bricks, also contain ten thousand gallons of water, when first completed, and he insisted that nearly all this fluid should evaporate before human beings are permitted to inhabit the dwelling. A serious mistake is often made by persons too eager to occupy a new dwelling. Inspecting the surface of the walls, and finding them to all appearance dry, they move in with the utmost confidence : but have hardly made the first fire when they discover that the walls, which had been declared by others and felt by themselves to be "as dry as a bone," begin to show on one surface or another, in this or that corner, abundant traces of moisture. From the windows, too, streams of sweat roll down and the whole atmosphere of the house reeks of musty dampness. We need hardly say that the unhappy occupants have been the victims of the ignorance or cunning of the builder and a presumptuous over-confidence. The house, in a word, was not dry when they entered it. There was certainly a sufficient appearance of dryness before occupation to delude the senses of any ordinary observer, but no sooner have the occupants entered, than these obvious proofs of continued moisture manifest themselves. The atmosphere has become saturated with the watery vapour exhaled from the lungs and skin of the inmates and produced by the various functions of the household, in which a free use of water at a high temperature is requisite. If the walls had been thoroughly dry, this moisture would have passed through their pores ; but meeting with the opposing water with which they are saturated, it is deposited in distinct spots upon the cold surfaces. The apparent dryness which had deceived the occupants was due to the air mixed with the water contained in the superficial pores of the material composing the structure. All the rest were filled with moisture only, for no sooner was a considerable quantity of water produced inside the dwelling by habitation than, finding no outlet through the wall, it was necessarily deposited on its surface. It must not be supposed that, when water is found to dim the inside of the window-panes, the building is not dry. Whenever the atmosphere of a dwelling is saturated with watery vapour, the glass—for it is not porous—will show indications of it, but the walls will not unless they are almost or wholly filled with humidity already. Moist spots showing here and there upon the walls of a house soon after occupation, however dry before they seemed to ordinary observers and however dry they are pronounced by interested persons, may be taken as a sure proof that they were never in reality so and that no one can live within them without risk to health and life. The conclusion from the fact that new structures are saturated with water which can only be got rid of by heat and air, is that it is necessary for thorough drying to submit them for a long time to an abundant supply of both. A constant and high degree of warmth from numerous fires and a thorough ventilation by means of open doors and windows, must be kept up and no one careful of his health should ever dwell in a new house until several months after its construction. Since buildings with walls of porous materials are the most readily permeable by air and necessarily the best ventilated and most easily dried, it may be questioned whether structures of iron and zinc are as favourable to the health of their inhabitants as the old-fashioned ones of wood, brick and stone. At any rate, it does not admit of doubt that mechanical contrivances for ventilation are indispensable in the houses of metal, though perhaps not in those of other material. Something can be done, perhaps, in the course of its construction, towards ensuring a dry building by the various artifices of the builder, such as placing a layer of concrete under the whole undersurface and erecting a low wall of perforated brick around the base, with a space of a few inches left between them. These contrivances may guard against the absorption of fresh moisture from the ground, but will never discharge the water abounding in every new structure of masonry. This can only be effected by the persevering application of heat and air.

HUMERUS

The humerus, or arm bone is the long cylindrical bone between the shoulder and fore-arm. It is adapted by a kind of ball-and-socket joint to a corresponding surface in the scapula and hence enjoys great latitude of motion and, from the shallowness of the receptacle, is somewhat liable to dislocation. It is connected with the forearm, composed of the radius and ulna, with a huge joint which does not admit of rotation, but which facilitates the bending of the arm or its strengthening, as the case may be, to the fullest possible extent.

HUMPBACK

A deformity occasioned by a protrusion of the vertebræ of the spine between the shoulders, caused by disease which imparts considerable increase to the natural curves of the spine.

HYDROCELE

See DROPSY.

HYDROCEPHALUS

(Greek, **hudor,** " water "; **keph'-ale,** " head ").

This is a disease in which the main feature is an accumulation of fluid in the central cavities of the brain : hence the more usual English name for the condition is Water on the Brain. Sometimes the child is born in that condition and then the dangers of delivery are considerably increased. More generally the symptoms appear after birth and become more marked in the second and third years of life. At first before the child can walk, nothing particular may be noticed, except that it has a large head. But as it grows older, it will be found that the child is not so sharp as others of the same age, that it walks with difficulty, that its teeth are backward in appearing and that the size of the head is out of all proportion to the rest of the body. The upper part of the skull—the bones of which being still soft and ununited are pushed apart from each other—enlarges so that the face appears much dwarfed ; the eyes are apt to roll about and there is inability to look upwards ; the skin over the scalp is smooth and tense and often marked with superficial veins. The rest of the body is generally badly nourished and the legs are often bowed if the child has walked too early and the wrists and ankles are enlarged. The mental condition varies from almost customary intelligence to imbecility. Such children are more liable than others to catch infantile disorders, such as whooping cough, convulsions, measles, scarlet fever, etc. When the mischief is but slight, the child may grow up to adult life; but when far advanced, death generally takes place before the child has reached five years of age.—*See* also DROPSY.

HYDROCEPHALUS, TREATMENT OF

The treatment will consist in giving nourishing food and tonic medicines; bathing with cold water or sea-water may do good. Bandaging the head has been recommended, the fluid has been drawn off and preparations of mercury have been rubbed in, but every case should be in the doctor's hands.

HYDROPHOBIA

(Greek, **hudor,** "water"; **phobos,** "fear").

Hydrophobia is the term applied to the conditions which occur in the human being after inoculation with the saliva of a rabid animal, most often a dog or cat. The term in its derivative sense is not always applicable, as the "dread of water" is not always present either in the patient or in the animal inflicting the injury. William Youatt, in his treatise on canine madness, thus describes the symptoms of the furious and sullen types of this disease in dogs, from which the disease is most generally derived:—"The disease manifests itself under two forms: the furious form, characterized by augmented activity of the sensorial and locomotive systems, a disposition to bite and a continued peculiar bark. The animal becomes altered in habit and disposition, has an inclination to lick or curry inedible substances, is restless and snaps in the air, but is still obedient and attached. Soon there is loss of appetite and thirst; the mouth and tongue are swollen; the eyes are red, dull and half-closed; the skin of the forehead is wrinkled; the coat is rough and staring; the gait is unsteady and staggering; there is a periodic disposition to bite, the animal in approaching is often quiet and friendly and then snaps; latterly there is paralysis in the extremities; the breathing and deglutition become affected by spasms; the external surface is irritable and the sensorial functions are increased in activity and perverted; convulsions may occur. These symptoms are paroxysmal; they remit and intermit and are often excited by sight, hearing, or touch. The sullen form is characterized by shyness and depression, in which there is no disposition to bite and no fear of fluids. The dog appears to be unusually quiet, is melancholy and has depression of spirits; although he has no fear of water, he does not drink, he makes no attempt to bite and seems haggard and suspicious, avoiding society and refusing food. The breathing is laboured and the bark is harsh, rough and altered in tone; the mouth is open from the dropping of the jaw; the tongue protrudes and the saliva is constantly flowing. The breathing soon becomes more difficult and laborious; there are tremors and vomiting and convulsions."

HYDROPHOBIA, SYMPTOMS OF

"The symptoms of hydrophobia," says Sir Thomas Watson, in one of the most graphic descriptions ever penned, " stated in broad outline, are these : excessive nervous irritability and terror, spasmodic contractions of the muscles of the throat, excited by various external influences and especially by the sight or sound of liquids and by attempts to swallow them, and sometimes absolute impossibility of swallowing them, earnest attempts to do so notwithstanding. When fluids are offered to and pressed upon the patient, he will take the vessel containing them into his hand, but draws back his head to a distance from it, with a repelling and apparently involuntary gesture ; meanwhile he makes a succession of hurried, gasping sighs and sobs, precisely resembling those which occur when one wades gradually and deeply into cold water. The sound of water poured from one vessel into another, gusts of air passing over his face, the sudden access of light, the waving of a mirror before his eyes, the crawling of an insect over his skin—these are things which in a hydrophobic patient suffice to excite great agitation and the peculiar strangling sensation about the fauces. He goes on rapidly from bad to worse ; in most cases more or less of mania or delirium is mixed up with the irritability. Illusions of the senses of sight and of hearing are not uncommon. The sufferer is very garrulous and excited. In some cases, but not in all, there is incontinence of urine. Foam and sticky mucus gather in his throat and mouth and he makes great efforts, by pulling it with his fingers and by spitting, blowing and hawking, to get rid of it ; and the sounds he thus makes have been exaggerated by ignorance and credulity into the foaming and barking of a dog. In the same spirit, the palsy of his lower limbs, which sometimes takes place, rendering him unable to stand upright, has been misconstrued into a desire on his part to go on all fours like a dog. Vomiting is a frequent symptom. The pulse in a short time becomes frequent and feeble and the general strength declines with great rapidity. Death occasionally ensues within twenty-four hours after the beginning of the specific symptoms. Most commonly of all, it happens on the second or third day ; now and then it is postponed to the fifth day and, in still rarer instances, it may not occur till the seventh, eighth, or ninth day. Usually the paroxysms, becoming more violent and frequent, exhaust the patient ; but occasionally the symptoms undergo a marked alteration before death. The paroxysms cease, the nervous irritability disappears, the patient is able to eat and drink and converse with ease ; those sights and sounds which so annoyed and distressed him before no longer cause him any disquiet. Dr. Latham had a hydrophobic patient under his care in the Middlesex Hospital. On going one day to the ward, he fully expected to hear that the patient was dead, but he found him sitting up in his bed quite calm and free from spasm. He had just drunk a large jug of porter. 'Lawk, sir ! ' said a nurse that stood by, 'what a wonderful cure ! ' The man himself seemed surprised at the change ; but he had no pulse ; his skin was as cold as marble. In half an hour he sank back and expired."

HYDROPHOBIA, TREATMENT OF

" What can be said," remarks Sir Thomas Watson, " of the treatment of hydrophobia or of rabies ? There is no authentic case on record, that

I am aware of, in which a hydrophobic person has recovered. As it has been, so it is still. The physician that cures is Death. It would be idle to discuss any curative measures after the peculiar symptoms of the disease have once set in. Not so, however, with respect to prevention; that is the important object in our practice. The early and complete excision of the bitten part is the only means of prevention in which much confidence can be placed; and even that is open to a source of fallacy. In the majority of cases no hydrophobia would ensue, though nothing at all was done to the wound. No doubt many persons undergo the operation needlessly. But in no given case can we be sure of this. If incision should, for any reason, be impossible, the wound should be cauterised." It is unnecessary to excise or cauterise in the case of every dog-bite, save on the principle of making assurance doubly sure. At the same time whenever there is the slightest suspicion regarding the condition of the dog, it would be safer to operate. The process is rough, inevitably. The wound must be treated with lunar caustic or carbolic acid or burned out with red-hot instruments. When there is reason to suspect that hydrophobia (or rabies) is general, even to a limited extent, the adoption of stringent muzzling orders for six months—provided the adoption be universal and the importation of unmuzzled dogs be scrupulously forbidden—will effectually stamp out all trace of the disease. The method of inoculation associated with the name of the illustrious French chemist and bacteriologist, Louis Pasteur, has been resorted to in cases of ascertained hydrophobia, but the results have been rather negative on the whole.

HYDROTHORAX

See Dropsy.

HYGIENE

(Greek, **Hygeia,** the Goddess of Health)

is the science of preventive medicine applied to public health. Wherever it has been carried into effect systematically, Sanitary Authorities are set up and Medical Officers of Health are appointed. Their duties are comprehensive and their powers large. Everything affecting man as the occupant of a building falls within their province. They are thus concerned with the sanitation of houses as buildings; the water supply and drainage of towns; the condition of the air in places (whether it is pure or impure); rainfall and meteorology; food and the various food markets; schools, hospitals and burying-grounds; vaccination, disinfection and notification; quarantine, and factories and workshops. In every country in which public health has thus been safeguarded by highly trained men, not only has the rate of mortality notably diminished, but the general welfare and comfort have been enhanced to a remarkable degree. For these reasons every considerable town has now its public medical officer of health.

HYGIENE OF THE MOUTH

1. *Tartar.*—The accumulation of tartar about the necks of the teeth and the retention of food and other matters in their depressions and between their contiguous surfaces, there to undergo fermentation and decomposition, are the principal existing causes of diseased gums, loosened teeth and decay. It

follows, therefore, that such deposits should be removed before they have had an opportunity to work mischief. There is no question that the one great essential to a healthy mouth is cleanliness. In fact, few, even of those who pride themselves upon the care which they bestow upon their dental organs, give to them the attention which their value demands. Many otherwise intelligent persons fail to appreciate the importance of taking due care of their teeth until compelled by suffering to do so. Then, when the necessity has become imperative, their chief thought seems to be not how best to prevent mischief and retain what is left of their dental organs in as perfect a condition as possible, but how immediate relief can be secured, or else how painless extraction can be effected. It must not be forgotten that decay is not the only enemy of the teeth. The absorption of the gums and sockets caused by the presence of tartar is a liability which, though not absolutely confined to teeth which are neglected, is yet a danger specially threatening such. This result might in a majority of instances be prevented by intelligent care—recession of the gums or absorption of the sockets rarely occurring in mouths that are habitually kept pure.

2. *Powders and Washes.*—On the other hand, many scrupulously careful people bring about the evils which they seek to avert, by improper methods and appliances. Much mischief is wrought by the use of unsuitable brushes and improper brushing, by the use of tooth powders and mouth washes, made in ignorance of the purposes to be subserved by their employment and likely to do harm, either because of their chemical action upon tooth-substances, or their unfavourable influence upon the health of the gums, or because of their containing ingredients likely to be deposited about the necks of the teeth, and thus cause the absorption of the gums and alveolar processes. Simple measures regularly employed are sufficient for healthy mouths. In diseased conditions the wash or powder to be employed should be prescribed by an intelligent dentist. Any wash for whitening the teeth is either incapable of accomplishing what is claimed for it, or does so at the expense of the integrity of the enamel. The habitual use of astringent washes or powders, so far from being conducive to the health of the gums, is injurious. For certain purposes such dentifrices are of service: but their use should be discontinued as soon as the object for which they are employed has been accomplished. Strong alkaline washes are also injurious. Washes or powders containing alum, cream of tartar, charcoal, ground barks, or acids of any description are injurious, either because of a chemical action upon the teeth, or because their insoluble ingredients are apt to insinuate themselves under the margins of the gums. Tooth powders containing excessive gritty or abusive ingredients, or even those of ordinary abrasive powder not sufficiently fine, do injury by roughening instead of polishing the enamel surfaces of the teeth. One of the simplest and cheapest of mouth-washes has also excellent cleansing properties, namely a pinch of glacialine (or powdered borax) and a pinch of common salt in half a cup or mug of cold water. The throat should be well gargled every morning with the wash, which should then be utilised for brushing the teeth.

3. *Powdered Charcoal.*—Perhaps there is no agent in common use for cleansing the teeth worthy of such utter condemnation as powdered charcoal. The results of its employment are pernicious ; the harsh, insoluble particles force themselves between the gums and the teeth, creating irritation, soreness and inflammation of the tissues and forming nuclei for the deposit of tartar, resulting in the absorption of the alveolar processes and the loosening and loss of the teeth. Its continued use also causes the gums to assume a tattooed appearance, like that which Indian ink produces when pricked into the flesh.

4. *Selection of Tooth Brush.*—It is safe to affirm that a very large majority of persons err in the selection of a tooth-brush. Most of the brushes on sale are too stiff and too large. The habitual use of such brushes is attended with ill results. Again, those who are most solicitous to secure perfect cleanliness of the teeth are apt to err decidedly in a too vigorous use of the brush. Many sets of teeth have been ruined by too much or injudicious brushing. Skill and not force, faithfulness and not muscle, are required to secure the best results. Most persons scrub the outer surfaces of the teeth as if to clean by scouring or friction were the object in using a brush. A very moderate application of a proper brush, with a gentle frictional powder, is sufficient for the external surfaces of the teeth and is desirable in order to prevent the tendency to unsightly discolorations ; but, as a prevention of decay, is the least useful mode of brushing. Indeed, if the cleansing process is carried no farther, this style of brushing does, perhaps, more harm than good, as it rubs particles of food and stringy mucus in between the teeth and allows them to remain just where they are capable of producing the greatest mischief. The surfaces of the teeth which are exposed to the movements of the tongue, lips, and cheeks, being thereby protected, do not especially need brushing, except to remove stains, while the interstices, interspaces, fissures, depressions, and cavities are exposed to the deleterious action of the fermenting materials which naturally lodge there ; to which are added the reinforcements carried by crosswise brushing. It should be remembered that the removal of the accumulations of food or mucus from the depression in the bicuspids and molars and from between the teeth is the essential point. The brush should be moderately soft, the bristles long and elastic and of unequal lengths, so as to facilitate their introduction between the teeth. The upper teeth should be brushed downwards and the lower teeth upwards, both on the outer and inner surfaces, thus avoiding crowding the gums from off the necks of the teeth while tending to the dislodgment of any deposits between them. The articulating faces of the teeth should be brushed with the same care as the other surfaces—backwards and forwards and from side to side, over the grinding surface of the molars, so as to cleanse all the depressions.

5. *Use of Powders.*—Once daily is quite enough to use a powder and the best time is just before retiring. During the waking hours the various movements of the tongue and muscles of the mouth in speech and otherwise, the constant salivary secretion and the mastication of food, all tend to prevent the chemical changes which during sleep take place without hindrance. The morning cleansing may be properly

performed with the aid of a little pure mild soap, such as old Castile, or a good tooth soap made expressly for the purpose ; the latter will be all the more efficient if it contain an antiseptic, such as creasote, carbolic acid, or salicylic acid. After meals it will be sufficient to use tepid water, to which has been added a few drops of spirit of ammonia, or a little bicarbonate of soda, or limewater — simply to neutralize any acidity. These after-meal cleansings should not involve a too vigorous use of the brush—merely a skilful dislodgment of adhering or impaled food is required.

6. *Cleansing during Change of Teeth.*—During the period occupied by the shedding and replacement of the temporary teeth—say from five to fifteen years of age—it is difficult to keep the teeth clean or the mouth sweet and healthy. It is advantageous during this time, indeed at any period when an acid condition of life is recognized, to use after the evening brushing a small quantity of precipitated chalk, rubbing it into the interstices of the teeth with the finger and allowing it to remain. The quantity need not be enough to be unpleasant ; as much as would adhere to the end of a moistened finger is sufficient to counteract any acidity during the night.

7. *Use of Tooth-pick.*—The use of a quill tooth-pick after meals, to dislodge particles of food from between the teeth, is advisable ; as is also the use of a strand of waxed gloss-silk passed between them at least once daily.

HYPERMETROPIA, OR LONG-SIGHT

(Greek **huper,**" beyond "; **metron,** " measure ").

This condition of vision should not be confounded with presbyopia, as it very frequently is. This mistake is a natural one, as both conditions require convex glasses, and both are popularly called " far-sight," though this is not a correct term for either of them. Presbyopia, or " old-sight," affects merely the near point of distinct vision, which is removed farther from the eye ; while in hypermetropia both the near and the far point are involved and there is no distinct vision at any distance without a strain ; this strain exists even for distant vision, but becomes greater the nearer the object looked at. Old-sight is a failure of the power to accommodate the focus of the eye to near objects resulting from a natural change in the density of the lens ; while hypermetropia is a defect in the focus, dependent upon the form of the eye and exists in childhood. In hypermetropia the axis of the eyeball is too short and the focus falls beyond the retina, which is too near the cornea. If the shape of an emmetropic eye is compared to that of an orange, a hypermetropic eye will have more the form of a turnip. In very young people, in whom the lens is soft and easily acted upon and who usually occupy themselves less constantly with close work, a very considerable degree of hypermetropia may pass unnoticed ; but sooner or later, according to the degree of the defect, the vigour of the individual and the nature of his occupation, the time must come when the strain will manifest itself by discomfort, distress, or complete disability for anything but manual labour. At first there is merely a sense of fatigue on prolonged use of the eyes, with, perhaps, a slight pain or " heavy feeling " in the brow. Then, after reading for a time, particularly at night, the print, which at first may have been perfectly sharp and clear, becomes blurred and misty, or even fades away entirely ; by closing the eyes for a little while and, perhaps, rubbing or bathing them, it is possible to resume the strain, but the same experience is repeated. Persons who persist in struggling on in this way have, for some time after the work is laid aside, a feeling of fatigue and discomfort in the eyes, accompanied by headache and, not infrequently, dizziness, irritability and mental confusion. Finally, in many cases, the tension of the accommodative power required for distant vision is felt and these symptoms, to a greater or less extent, become continuous, even when no attempt is made to use the eyes for near work.

HYPOCHONDRIASIS

(Greek, **hupo,** " beyond " ; **chondros,** " cartilage " ; in allusion to the region below the short ribs, the supposed seat of the disorder).

Hypochondriasis—also known by the old English equivalent of the Vapours—seems to be the correlative in the male sex of that which, in the female, we call hysteria. The conditions have long been well known, though very various causes have been assigned to it, the favourite being for many years the formation and circulation of " black bile," for melancholia means this exactly. Nowadays we assign to it a nervous origin and, though there may be no actual disease, the condition is one very hard to get rid of. Most frequently there is functional derangement of some part, generally of the stomach, though sometimes there is real alteration in structure.

HYPOCHRONDRIASIS, SYMPTOMS OF

The chief characteristic of hypochondriasis is a morbid self-consciousness similar in some respects to that of hysteria, but generally taking a different direction. The hypochondriac usually fancies himself the subject of all the ills that flesh is heir to. There is usually a great dread of death and the patient resents being told there is nothing the matter with him. Withal such a man always has something the matter with him—generally a most obstinate indigestion. And if that be cured, the patient is usually in a fair way to be relieved of his mental symptoms. Frequently his malady assumes the character of insanity, some member of the body being supposed to be lost, or so altered as to be useless, or worse than useless. Hypochondriasis seldom occurs in those who lead an active, healthy life in the open air. It is most common among those who, living well, take little exercise and whose lives are what is termed sluggish. Such individuals will often be subject to short attacks of a malady of this kind, which a little laxative medicine and exercise in the open air will soon carry off. It is very frequent, too, among those who, having led an active life, retire to comparative early rest and quiet, as they think. Such, having seldom any internal resources in the way of education and cultivation, have recourse to morbid introspection. Their own feelings, desires and aims become their only company and so each uncomfortable sensation is pondered until some comparatively slight ailment is magnified into a thing of the first importance. Those who have long had their minds strained by overwork are liable to a somewhat similar form of disturbance. In them, however, the bodily subject is less the object of notice—

it is the mental ; it is those which suffer most. They become miserable objects for the time being ; they lose their nervous energy, become weak and wretched ; they fear to cross the streets ; they live in constant dread of having done something wrong, or of having wrong attributed to them ; they are the shadows of their former selves. Hard students are frequently so troubled.

HYPOCHRONDRIASIS, TREATMENT OF

In one set of cases mentioned above, exercise for the head is wanted ; in another, exercise for the body. For the retired man of business something is wanted to keep his mind engaged and this may often be found in the affairs of the parish, town or country in which he may be placed. To the other set of patients mental work is already too severe a burden. They ought to have more relaxation and this relaxation ought to take the nature of regular bodily exercise. The selection of the kind of exercise may in great measure be left to each individual. But this is to be borne in mind : that extremely violent exercise for a few moments will not answer the same purpose that moderate exercise for a longer period will ; so, too, violent exercise one day and quiet the next will not answer. The great thing is to keep the system equable. Such men as desire to excel in mental work should not attempt to vie with the athlete. The two things are very seldom compatible. These things are, however, rather to be looked upon as a means of maintaining health in all these circumstances, or of getting rid of slight attacks of the malady. They will not suffice for more serious cases. When a man is fairly "hipped," as it is called, there is only one satisfactory remedy—total change of scene and pursuits. Often we have seen a new lease of life gained by a short rest and change of scene. After these, the general rules above laid down are to be duly observed ; especially is indigestion to be looked after, but only by proper food and appropriate exercise—not by medicines, if they can be avoided. The desideratum is to employ the spare time that is so apt to hang heavily upon the man who has, through no fault of his own, few interests. For him nothing is better than a round at golf every forenoon (and afternoon, too, if he is equal to it), or a constitutional walk daily, provided he can rely upon the companionship of a friend : a solitary walk would be too likely to feed the hypochondriac state. In summer bowls is an admirable game for the sufferer from this distressing condition. It should be played every evening throughout the season. Though such games as chess, draughts, dominoes, whist, solo whist and bridge afford no bodily exercise, yet they are valuable in respect of their power of taking a man, so to speak, outside of himself for the time being. Billiards is an indoor recreation that possesses the added advantage of exercise. There is one caution we desire to enforce, and we do this very earnestly. As a rule, hypochondriacs sleep badly—often those especially who have too much mental and too little bodily work are troubled with frightful dreams and restless nights. To these we say, avoid opium or other sedatives ; if the bowels are not open, try a blue pill and a black draught.

MUSCLES OF THE TRUNK AND LEGS.

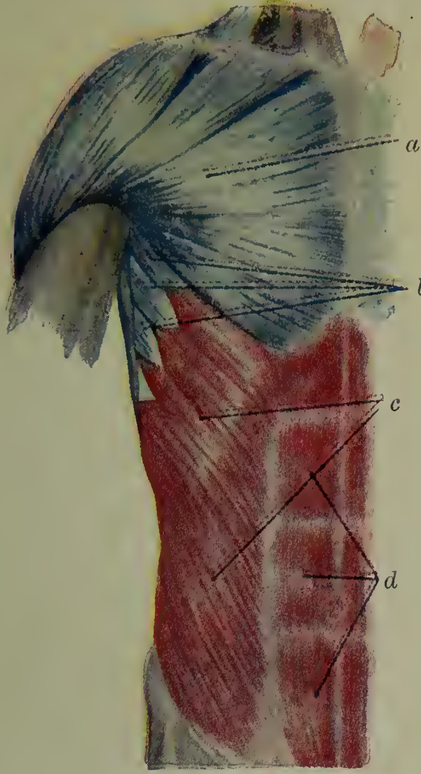


FIG. 1.

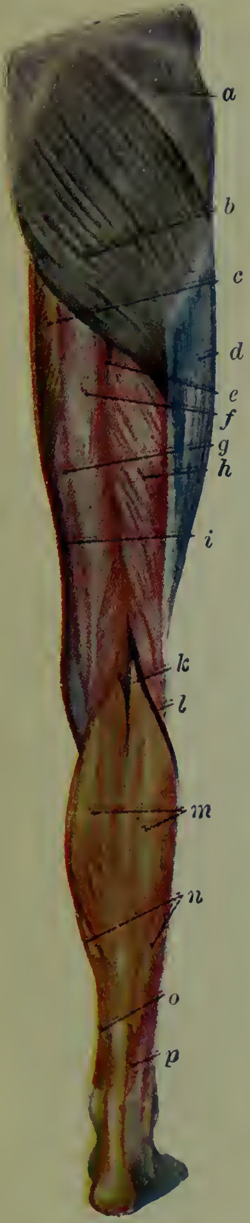


FIG. 3.

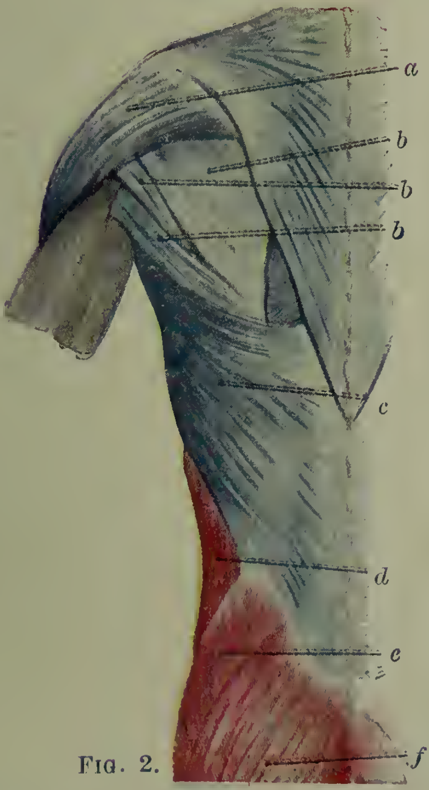


FIG. 2.

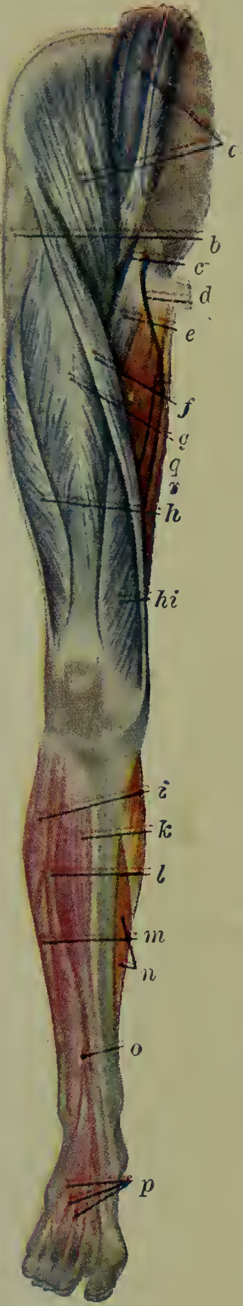


FIG. 4.

FIG. 1 (front).—*a*, pectoralis major; *b*, serratus magnus; *c*, external oblique muscle of the abdomen; *d*, muscles around the linea alba and umbilicus. FIG. 2 (back).—*a*, deltoid; *b*, *b*, *b*, infraspinatus, teres minor, teres major; *c*, latissimus dorsi; *d*, back of the external oblique muscle of the abdomen; *e*, part of gluteus medius covered by the fascia lata; *f*, gluteus, maximus. FIG. 3 (back).—*a*, gluteus medius covered by the fascia lata; *b*, gluteus maximus; *c*, adductor magnus; *d*, vastus externus; *e*, *f*, semitendinosus; *g*, semimembranosus; *h*, biceps flexor cruris; *i*, gracilis; *k*, in the popliteal space, pointing to the origin of the plantaris; *m*, gastrocnemius; *n*, soleus; *o*, flexor longus digitorum; *p*, tendo Achillis. FIG. 4 (front).—*a*, external oblique muscle; *b*, gluteus medius; *c*, psoas and iliacus; *d*, adductor longus; *e*, pectineus; *f*, sartorius; *g*, rectus femoris; *h*, vastus externus; *hi*, vastus internus; *i*, peroneus longus; *k*, tibialis anticus; *l*, extensor communis digitorum longus; *m*, peroneus brevis; *n*, inner part of soleus; *o*, extensor longus pollicis; *p*, peroneus tertius; *q*, adductor magnus; *r*, gracilis.

HYSTERIC CONTRACTIONS

(Greek, **hysterikos,** "caused by the womb").

It is remarkable that hysteria is sometimes accompanied by a distortion produced by a spasmodic contraction of the flexor muscles of one of the joints, commonly the knee or hip. For months or years this painful condition may last without mitigation; yet it may vanish all at once under the influence of some powerful impression of the body or mind. The entire loss of the voice, which sometimes comes on suddenly in similar constitutions and, after long resisting every remedy, as suddenly departs, is probably an analogous affection of the muscles of the larynx.

HYSTERIC TOOTHACHE

See TEETH, NERVOUS RELATIONS OF THE.

HYSTERICS

Hysterics consist in a convulsive struggling, alternately remitting and increasing, with a sense of a suffocating ball in the throat, drowsiness, copious discharge of pale urine, rumbling in the bowels and fickleness of temper.

HYSTERICS, CAUSES OF

Hysteric affections occur much more frequently in the unmarried than in the married and most commonly between the age of puberty and that of thirty-five years; and they make their attack oftener about the period of menstruation than at any other time. Women of a delicate habit and those whose nervous system is extremely sensible are most subject to hysterics; and the habit which predisposes to their attack is caused by inactivity and a sedentary life, grief, anxiety of mind, late hours, dissipation, a suppression or obstruction of the menstrual flow, excessive evacuations and the constant use of an innutritious diet. They are readily excited in those who are subject to them by passions of the mind and by every considerable emotion; and are especially the effect of surprise: hence sudden joy, grief, or fear is very apt to occasion them. They have also been known to arise from irritation and sympathy. Constipation and severe disorder of the bowels will sometimes give rise to very painful hysteric fits. The exciting causes of hysteric fits are chiefly the various affections of the mind, as fear, terror, pleasing excitement, sudden joy, anxiety, or distress. And the proper preventive treatment, consequently, is the regulation of the mind and avoidance of the above mental affections in their excess.

HYSTERICS, SYMPTOMS OF

The hysteric fit often takes place without any previous warning, though generally there are some preliminary signs, as yawning, stretching, dejection of spirits, anxiety of mind, sickness at the stomach, palpitation of the heart and sudden bursts of tears, without any assignable cause. The paroxysm soon succeeds, with a coldness and shivering over the whole body and frequently an acute pain on the left side and a sense of distension, giving the idea of a ball or globe rolling about in the abdomen and gradually advancing upwards till it gets into the stomach; thence removing to the throat, it occasions the sensation of an extraneous body lodged there, which is called *globus hystericus.* The disease having arrived at its height, the patient appears threatened with suffocation, she becomes faint and is affected with stupor and insensibility ; whilst, at the same time, the trunk of the body is twisted backwards and forwards, the limbs are variously agitated and the fists are closed so firmly that it is difficult, if not impossible, to open the fingers ; wild and irregular actions follow, in alternate fits of laughing, crying and screaming, incoherent expressions are uttered and sometimes a most obstinate and distressing fit of hiccough takes place. The spasms at length abating, a quantity of wind is belched, with frequent sighing and sobbing ; and the patient, after appearing for some time quite spent, recovers the exercise of sense and motion, without any other feeling than a general soreness and a pain in the head. It is rarely that a hysteric fit becomes dangerous ; though it has, in a few instances, terminated in epilepsy or insanity.

HYSTERICS, TREATMENT OF

Put the hysterical person on the bed and loosen all the clothing. Be decided but not hard in your manner. The hysterical fit will pass off without injury to the patient. A sensible writer recommends cold bathing, open-air exercise, strengthening diet, cheerful surroundings, with the removal of all care and perplexities. Attention to regularity of the bowels and frequent change of air and scene are positively demanded. All irksome family requirements should be suspended. Iron pills may be taken, two at a dose, night and morning ; and a bitter tonic (quassia, gentian, etc.), in half-wineglass doses, two hours before dinner and supper. At the proper season, sea-bathing will prove beneficial. What is known as the Weir-Mitchell treatment of hysteria has undoubtedly produced remarkable result isn cases which have been intractable to ordinary treatment. The success is most striking in those advanced cases which have become chronic and bed-ridden. The principal features of this treatment consists in the separation of the patient from sympathetic friends and relatives ; the confining of the patient to bed, not allowing her at first to read, write, or even feed herself ; and the daily use of massage. The diet for the first week or two consists almost entirely of milk, a teacupful being given every two hours. After a little while solid food is added to the dietary ; a chop for example being given at noon, and toast and bread and butter being given with the milk.

ICE

When ice is required, either in sickness or for table purposes, care should be taken that it is obtained from proper sources. A large quantity of ice, apparently clear and transparent, is sold which comes from objectionable sources and, when melted, fairly merits the designation of dirty water. Some of this melted ice has been found to contain a considerable amount of sediment, apparently of vegetable matter. Those who use ice should test its purity by dissolving a small portion in a wineglass and if the water is clear and bright, in all probability it will be fit for use ; but if otherwise, it should be rejected. Some people suppose that ice purifies itself by the process of freezing, but this notion is not based upon trustworthy observation.

ICE

See COLD APPLICATIONS.

ICE-BAGS

See Cold Applications.

ICE-WATER

Ice-water is a comfortable, but an unhealthy and even dangerous, drink for summer, for the more you drink the more you have to drink, until an uncomfortable oppression is observed. One-fifth the quantity swallowed, in the shape of small lumps of ice, satisfies the thirst.

ILEUM

supposed to be so called from its numerous coils, includes the remaining ten or twelve feet of the small intestine.

INCISORS

See Teeth, Permanent.

INCONTINENCE OF URINE

Incontinence of urine is a frequent or perpetual discharge of that fluid, with difficulty of retaining it. This disease usually proceeds from relaxation or palsy of the sphincter muscle of the bladder, induced by debility, the abuse of spirituous liquors, etc. ; or it arises from a peculiar acrimony in the fluid itself ; from a diseased state of the organ ; injury done to the parts, either by accident, by the process of ulceration, or by the performance of the operation of lithotomy ; irritation produced by stones in the bladder ; or the pressure of the womb in the state of pregnancy. In very young children it may be due to worms, very acid urine, tightness of the foreskin, improper food and excessive drinking of various liquids, or may occur in connexion with such an ailment as St. Vitus's dance or such a trouble as enlarged tonsils.

INCONTINENCE OF URINE, TREATMENT OF

As the complaint commonly proceeds from debility, tonics are generally found to be the most efficacious remedies, such as bark and steel. At the same time that one of these remedies is taken internally, cold water should be freely applied locally and a belladonna plaster to the sacrum or broad bone at the bottom of the spine is frequently of material service. Blisters applied to the sacrum of boys who are apt to wet their beds have often completely cured them of this incontinence, but they should not be employed unless ordered by the medical attendant. The abstaining from fluids for some hours before retiring to rest is beneficial. In very young children they must be given an opportunity to make water just before going to bed and should be lifted out of bed for the same purpose before the mother retires for the night. Five drops of the tincture of belladonna, administered twice or thrice a day, the last dose at bedtime, are frequently of service and the quantity may be doubled should the affection prove obstinate. As to the other causes worms should be treated, the tightness of the foreskin necessitates circumcision, and acid urine must be treated by citrate of potash (10 grains, twice or thrice a day) or other alkaline medicine.

INDIGESTION

Indigestion, or dyspepsia, as it is also commonly called, is in one group mainly due to simple derangement of the powers of digestion without any eventual change in the organs. This derangement is dependent on weakness ; but the source of the weakness may be local, that is, confined to the stomach ; or general, that is, due to something which affects the whole system. To this group, too, belong the changes which take place in the digestive organs in old age. Another large group of indigestions is connected with inflammatory changes in the stomach. These changes may depend on various causes ; very frequently improper food—improper, that is, in quantity or quality—is at the root of the mischief. Yet another form of indigestion is due to nervous influences ; witness the effects of anxiety, fear and the like emotions in completely averting not only appetite but digestion. Irregularity in taking food is a great drawback to perfect digestion. But this must be remembered, that if a man is working hard in the open air he can digest twice as much food as, and many times more of some kinds of food than one who lives a habitually sedentary life. Deficiency of food, accompanied as this almost invariably is by unsuitable food, is a serious cause of dyspepsia among the poorer classes. In health, all we ought to know of our digestion through sensation is that satiety has succeeded hunger and that, for a shorter or longer period, we are indisposed to exertion. When digestion is imperfect, many sensations, local and general, occur to distress and disturb us. The stomach may be the seat of pain and of feelings of weight and distension ; nausea and loathing of food may take the place of appetite and retching and vomiting may be continually present ; the brain and nerves may be disordered, depression of spirits, headache, confusion of thought, disturbed vision, vertigo, fits of insensibility may follow, the action of the heart may be irregular, the breathing oppressed and embarrassed with constant troublesome cough.

INDIGESTION, HOMŒOPATHIC TREATMENT OF

For this complaint in nervous and hypochondriacal patients, arnica montana is usually prescribed ; in bilious and rheumatic patients, bryonia ; for chronic dyspepsia, hepar sulphuris ; and for indigestion produced by over-eating or sedentary occupation, nux vomica. *Dose.*—One drop of the tincture in one tablespoonful of water administered every two, three or four hours, according to circumstances.

INDIGESTION, NERVOUS

Nervous indigestion is characterized by discomfort after meals, although the act of digestion proceeds normally and is accomplished within the usual time. It generally occurs in nervous or hysterical patients, and yields to treatment aimed at the nervous disorder itself. What is known as the Weir-Mitchell treatment is often very successful in these cases. This consists principally of rest in bed, isolation, a liberal milk diet and daily massage.

INDIGESTION, SYMPTOMS OF

In dyspepsia the character of the person gradually changes for the worse ; the most placid grows petulant and irritable ; the loving heart becomes estranged by groundless suspicions ; the cheery face wears an oppressive sadness, while all that was once joyous and hopeful and glad goes out at length into the night of settled melancholy and possibly even a worse condition still. Although Galen, perhaps, rather unduly estimated the benefits of regimen, when he desired the philosophers to send all bad characters to him, yet no fact is better established than that diet greatly modifies the temper. Those who, conjoining gastronomic industry with general idleness, acquire dyspeptic acidity of the stomach commonly know, from experience, the meaning of a sour disposition ; and those in whom good humour still so far prevails over bad blood as that they carry a pleasant countenance, yet feel, when gout is brewing in their veins, as if some evil spirit had possession of them, since the slightest circumstance that interferes with their pleasure throws them into a sudden rage. The condition of blood which precedes gout is so constantly associated with irascibility that John Hunter says gout and anger are almost synonymous in some persons. Indeed, it seems that what generally goes under the name of irritability is essentially a disorder of the blood, which operates as an inconvenience, an unnatural stimulus, disturbing the proper action of the brain and rendering it unfit to be employed for the ordinary purposes of the mind. Unless bodily activity accompany free living, this state is sure to be induced, as students are generally aware, for beef and stimulants, freely enjoyed, very shortly reduce the faculties to confusion, unless, by vigorous exercise, the waste of the body is, in some measure, proportionate to the supply. Flatulence is a very important symptom of indigestion. It is due either to accumulation of gas in the stomach and bowels, or it may be formed there. The gas which gives rise to flatulent distension is commonly derived from fermentative changes in the food swallowed. Acidity is another important symptom. *See* ACIDITY OF THE STOMACH AND FLATULENCE.

INDIGESTION, TONIC MIXTURE FOR *See* MIXTURES.

INDIGESTION, TREATMENT OF

In attempting the cure of dyspepsia, it is necessary to find out the smallest quantity of nutriment which is required by the system and the greatest which can be digested by the stomach with comfort. Here the conditions of the patient's life must be borne in mind, for there is a marked difference in the amount of food which will suffice for a listless invalid and one habitually undergoing powerful bodily exertion. Moreover, it is of the first importance to present this food to the stomach in an easily digested form. Soups and broths are rarely tolerated in such conditions, mainly because they dilute the gastric fluids too much. Nevertheless, there is one fluid form of food which can usually be taken, that is, milk ; and if it cannot be taken fluid, it may be coagulated by rennet. When arising from exhaustion, this form of dyspepsia necessitates small meals ; but these may be frequently repeated and stimulants may be combined with them. No salt or preserved meat should be used and meat should be fairly well but not over-cooked. Hence re-cooked meat is forbidden. Mutton and beef must form the staple diet ; game and fowls may be allowed as a change. Pork and veal are entirely excluded, as are ducks and geese. Fish is also permitted within certain limits ; herrings and salmon, on the other hand, are not allowed ; eels and trout are on the borderland.

The best for ordinary use are plain boiled turbot, sole, whiting, or haddock. Shell-fish, except oysters, is absolutely forbidden. Still more care is necessary with regard to starchy food. All vegetable food should be cooked, and it should be young, tender, quite fresh and well boiled. It is better, on the whole, to try stale bread, macaroni and rice, with some green vegetables, than to use potatoes. Light puddings are permissible, but not heavy, doughy preparations, and all pastry is forbidden. Butter may be used with bread, but in no other way and it should be quite fresh. Fat or oil in any other shape is inadmissible. Fruits must be carefully selected ; but most may be eaten, or rather sucked, provided care be taken to avoid everything solid—husks, skin, seeds and woody matter. Nuts of all kinds must be rejected. Let us bear in mind the well-founded opinion entertained by Benjamin Franklin, who said that nine-tenths of the diseases of men were caused by over-feeding. John Abernethy in one of his lectures thus addressed his hearers : "I tell you honestly what I think is the cause of the complicated maladies of the human race : it is their gormandizing and stuffing and stimulating their digestive organs to an excess, thereby producing nervous disorders and irritation." Wisdom and temperance have always been companions and men most famous for the extent and continued energy of their faculties have been convinced that habitual moderation in eating and drinking was essential to the full and healthy employment of their intellect ; that those best known for clearness and elevation of mind have also been most remarkable for their control over their appetites. Sir Isaac Newton is a good example. Dr. Cheyne states of him that when he applied himself to the investigation of light and colour, to quicken his faculties and enable him to fix his attention, he confined himself all the time to a small quantity of bread, with a little sack-and-water, without any regulation, except that he took a little whenever he felt his animal spirits flag. Dyspeptics, with morbid appetite, if intelligent, conscientious and determined not to abuse themselves, are constantly engaged in a hard struggle, in a hand-to-hand fight. The dyspeptic sits at the table at each meal with a determined will and gives his whole mind to it. He says, "Now I will eat one dish of soup, a small piece of beef, one spoonful of potatoes, one of cauliflower, a small piece of pie and just a spoonful of ice cream." But his appetite is ravenous, the conversation pleasant, he partly forgets and his resolution fails. He takes just one more mouthful of pie, which turns out, of course, to be another piece, just the least bit of the pudding, which they all declare to be delicious, then another spoonful of ice-cream ; well, in short, he repeats for the thousandth time an excess, suffers, and so goes on for months and years. If there is one rule about eating in which all persons are agreed it is, that our meals should be taken at stated and regular periods. People may differ about vegetarianism, about sweets, about pies and cakes, about tea and coffee ; but we have never met a person who would insist that regularity was of no consequence, that it was just as well to take two meals to-day and five to-morrow ; to take dinner at one o'clock to-day, three to-morrow and five next day.

Without understanding the physiological law, all are satisfied that regularity is important. Dyspeptics should with all their might avoid the following errors :

1. They should not weaken the organs of digestion by giving them too little to do.
2. The use of the digestive organs has been greatly extended and multiplied, especially in modern times.
3. They should not confine themselves to exclusively coarse and loosening food.

Three meals a day is, perhaps, the best rule : breakfast, say, at nine, something about one and dinner at six. Too long intervals are almost as bad as too short, especially should the sufferer aim at cheerfulness during digestion and absorption. Tea after dinner almost invariably does harm ; not so black coffee, moderately strong. As a rule it suits, but it must not be swallowed hotter than the temperature of the body, or a little over, so as to feel pleasantly warm. All the other matters tending to a restoration to health must be observed. Change of air and change of scene, a sea voyage, etc., will often do great good ; but as the invalid is greatly dependent on food for his cure, he should seek to recruit himself where good plain cooking and sound food are to be had. A good steady walk of twenty miles a day through fine English scenery, with an old-fashioned inn to rest at in the evening, will often do marvels in the way of cure. A cold bath in the morning should be the rule with all who can stand it ; if not, one as cold as possible, but not warmer than tepid, should be used. As regards medicine, it should be laid down as a rule that no medicine is to be taken without a doctor's advice. We doubt whether there is any remedy in medicine for confirmed dyspepsia. " Medicine," says Dr. Hill, " cannot make gastric juice, which is one of the essential requisites for healthy digestion." It is a liquid prepared as a consequence of the need of repair ; this need of replenishment and repair is occasioned by a previous waste or wear ; that waste or wear cannot be brought about without motion of the muscles, which is expressed by the word exercise ; it is muscular exercise which creates gastric juice. Hence the first essential in the cure of dyspepsia is exercise, more particularly out-of-door exercise.

People who suffer from indigestion frequently seem to think that there is some magical cure for their condition which will act without themselves making any effort or sacrifice ; but, as Dr. Hawkins points out, the common disorders of the stomach are mostly self-inflicted, and it is quite as important to correct all vices of eating, diet, and life to secure their results. Excess of food and drink, improper food, imperfect mastication through defective teeth or hurry, and a general tendency to quick meals and immediate movement thereafter play a large part in digestive disturbance. It is necessary to estimate correctly the actual amount of food that is being consumed daily by persons suffering from indigestion who have passed middle life. The requirements of the body in the matter of food lessen with increasing years, but the appetite often remains as hearty as in youth.

INFANT, MANAGEMENT OF

The following may be summarized as general rules for the management of infants :—

1. Bathe the child once a day

in tepid water. If it is feeble, sponge it all over twice a day with tepid water, or with tepid water and vinegar. The health of a child depends much upon its cleanliness.

2. Avoid all tight bandaging. Make the clothing light and cool, and so loose that the child may have free play for its limbs. At night undress it, sponge it and put on a knitted undervest. In the morning remove the vest, bathe the child and dress it in clean clothes. If this cannot be afforded, air the day-clothing by hanging it up during the night. Use clean diapers and change them often. Never dry a soiled one in the nursery or in the sitting-room and never use one for a second time without first washing it.

3. The child should sleep by itself in a cot or cradle. It should be put to bed at regular hours and be early taught to go to sleep in the dark without being nursed in the arms and without being waited on. Never give it any spirits, cordials, carminatives, soothing syrups, or sleeping-drops. Thousands of children die from the use of improper articles. If the child frets and does not sleep, it is either hungry or ill. If ill, it needs a doctor. Never quiet it by candy or by cake ; they are the common causes of diarrhœa and other troubles.

4. Give the child plenty of fresh air. In the cool of the morning and evening send it out to the shady sides of broad streets, the public squares or park. Keep it out of the room in which washing or cooking is going on.

5. Keep the house sweet and clean, cool and well aired. In very hot weather let the windows be open day and night. Do not cook in every room, but only in the kitchen. Whitewash the walls of the cellar and any outhouse every spring, and see that the cellar is clear of all rubbish. Let no slops collect to poison the air. Correct all foul smells by pouring chloride of lime or other strong disinfectant into sinks and closets. The gutters on the street or garden should be kept scrupulously clean.

6. Breast-milk is the best food for infants. If the supply is ample and the child thrives on it, no other kind of food should be given while the hot weather lasts. If the mother has not enough, she must not wean the child, but give it, besides the breast, goat's or cow's milk, as prepared under Rule 8. Nurse the child once in two or three hours during the day and as seldom as possible during the night. Always remove the child from the breast as soon as it has fallen asleep. Avoid giving the breast when you are over-fatigued or over-heated.

7. If, unfortunately, the child must be brought up by hand, it should be fed on a milk diet alone—that is, warm milk out of a nursing bottle, as directed under Rule 8. Goat's milk is the best and, next to it, cow's milk. If the child thrives on it, no other kind of food should be given it while the hot weather lasts. At all seasons of the year, but especially in summer, there is no safe substitute for milk if the infant has not cut its front teeth. Sago, arrowroot, potatoes, cornflour, crackers, bread and every article of diet containing starch, cannot and must not be depended upon as food for very young infants. Creeping or walking children must not be allowed to pick up unwholesome food.

8. If the milk is known to be pure, it should have one-third part of hot water added to it until the

child is three months old ; after this age the proportion of water should be gradually lessened. Each half-pint of this food should be sweetened either with a dessert-spoonful of sugar of milk, or with a teaspoonful of crushed sugar. When the heat of the weather is great, the milk may be given quite cold. Be sure that the milk is unskimmed, have it as fresh as possible and brought very early in the morning. Before using the pans into which it is to be poured, always scald them with boiling water. In very hot weather, boil the milk as soon as it comes and at once put away the vessels holding it in the coolest place in the house—upon ice, if it can be afforded, or down a well. Milk carelessly allowed to stand in a warm room soon spoils and becomes unfit for food.

9. If the milk should disagree, a tablespoonful of limewater may be added to each bottleful. Whenever pure milk cannot be got, try the condensed milk, which often answers admirably. It may be prepared by adding to ten teaspoonfuls of boiling water, without sugar, one tablespoonful or more of the milk, according to the age of the child. Should this disagree, a teaspoonful of arrowroot, of sago, or of cornflour may be cautiously added to a pint of the milk, as prepared under Rule 8. If milk, in any shape, cannot be digested, try, for a few days, pure cream diluted with three-fourths or four-fifths of water—returning to the milk as soon as possible, or dilute the milk with barley water made from Robinson's Patent Barley.

10. The feeding-bottle must be kept perfectly clean ; otherwise the milk will turn sour and the child will be made ill. After each meal, it should be emptied, rinsed out, taken apart, and the nipple and bottle placed in clean water, or in water to which a little soda has been added. It is a good plan to have two feeding-bottles and to use them in turn. The best kind is the plain bottle with a rubber nipple and no tube.

11. Do not wean the child just before or during the hot weather ; nor, as a rule, until after its second summer. If suckling disagrees with the mother, she must not wean the child, but feed it, in part, out of a feeding-bottle, or on such food as has been directed. However small the supply of breast-milk, provided that it agrees with the child, the mother should carefully keep it up against sickness ; it alone will often save the life of a child when everything else fails. When the child is over six months old, the mother may give it one or two meals a day of stale bread and milk, which should be pressed through a sieve and put into a feeding-bottle. When from eight months to a year old, the baby may have also one meal a day of the yolk of a fresh soft boiled egg, or one of beef or mutton broth, into which stale bread has been crumbled. When older than this, it can have a little meat, finely minced ; but even then milk should be its principal diet and not such food as grown-up people eat.

INFLAMMATION though a most serious condition, is a symptom of disease rather than a disease in itself and its treatment must be sought in connexion with the organ or tissue affected. Often it happens to be Nature's mode of cure, as in bleeding, in which by its means the ends of the bleeding vessels become sealed ; as in wounds, many of which, but for its instrumentality, would remain open and never heal ; as in surgery, in which the surgeon sometimes has to promote inflammation in order to cause the broken ends of bones to unite. Disease names terminating in "itis" (Greek) denote inflammation of an organ or part, as gastritis (inflammation of the stomach), bronchitis (inflammation of the bronchial tubes), phlebitis (inflammation of the veins) and so on. Local symptoms of inflammation are heat, swelling, redness and pain, while the most conspicuous general symptom of inflammation is fever, manifested in every degree of activity. Inflammation may terminate naturally by resolution, or by suppuration (as of an abscess), or by ulceration (in which a part may be destroyed), or by gangrene (in which the destruction of a part takes place on a larger scale). For the different kinds of inflammation, *see* the diseases of which it is a prominent symptom.

INFLUENZA

Influenza is a specific and epidemic fever which chiefly attacks the lining membrane of the nose, larynx and bronchial tubes, lasting from four to eight days, and not preserving the individual from a future attack. In fact one of the most remarkable features of the disease is that, so far from an attack conferring immunity for the future, the more one has of it the more one is likely to have. This disease has occurred in various countries at different times, and has received a vast number of names ; in the seventeenth century it appeared in Italy and first received the name of "influenza," because it was attributed to the influence of the stars. The area attacked has also much varied in extent ; sometimes only part of a country has been affected ; at other times it has spread over a great part of the civilized world. One of the earliest recorded epidemics in England appears to have taken place in 1510 ; since that time this country has been invaded by it so frequently that it may be described as a real scourge. A disease is said to be "endemic" when it is confined to a small area, as a village or town ; "epidemic" when it spreads over a country ; "pandemic" when it invades a large portion of the earth's surface. Influenza occurs in both an epidemic and pandemic form. The poison seems to be conveyed by the air and persons at a distance from land may become attacked. Attacking a community, the disorder generally remains for several months, but occasionally it has remained longer ; the epidemic will completely disappear then for a time ; nor is it usual to find an occasional case breaking out in the interval of epidemics. It is common to hear people complain in the winter of having an influenza cold, but this is a misapplication of the word. The onset of the disease is generally very rapid, while the decline is more gradual and may last several weeks. Various physical conditions have been supposed to influence the outbreak of this disease. Volcanic eruptions were once thought to be a cause, but there has been no trustworthy evidence of this ; soil seems to have no effect, for the complaint has appeared in every variety of country, in high lands as well as in low lands, in hill countries as in marshes and plains. Nor does the time of the year seem to have any effect, since it has been prevalent at all seasons. There is, also, no connexion between temperature and influenza ; it occurs in high as in low temperatures, nor does any sudden variation of cold or heat seem to produce any effect. Moisture also has no apparent influence, nor is there evidence at present that any atmospheric condition has effect on this disorder. The intercourse of human beings does appear to have an influence on the disorder ; thus, an affected person coming into a village seems to be a centre from which the disease spreads ; nevertheless it is very remarkable that thousands may be attacked in the same town in the course of a few hours, while in other contagious disorders the progress is much slower. In this disease, as in other contagious diseases, there is a period of incubation, when the poison seems, for a time, to be latent in the system before any of the marked symptoms declare themselves and although, in most cases, persons seem to be suddenly struck with influenza, yet there is a period of incubation, which may be very short or may last for some days. In influenza, as we have said, one attack gives no immunity from another and there are instances in which the same person has suffered more than once during the same epidemic. Various speculations have been made as to the nature of the exciting causes of this disorder. It cannot arise from contamination of water, as it would then be confined to a particular locality, nor to any kind of food. The rapid way in which it spreads shows that the poison must exist in and be conveyed from place to place by the air, for in this way alone can we account for the rapid transmission of the disorder. Dr. Burney Yeo holds that it is probably a bacillary disease, that is to say, propagated and diffused by a micro-organism and there can be little doubt but that this is the true causation of influenza. Race and sex seem to be equally attacked, but the young are said to be less liable to it than old people. Overcrowded habitations have increased the mortality in some epidemics, while places which are low, damp and badly ventilated appear to predispose to it.

INFLUENZA, SYMPTOMS OF

The symptoms vary in severity in different epidemics and in different cases. The onset is sudden, announced in severe cases by marked rigor, more often by chill and shivering, alternating with flashes of heat. Then follow general lassitude, debility, nervous prostration, soreness and stiffness of the limbs, pains in the neck, back and loins, headache, frontal oppression, pain in the cheekbones and root of the nose, injection and sensitiveness of the eyes, with copious flow of tears, sneezing and tingling, followed by watery and often acrid discharge from the nose, soreness of the tonsils, Eustachian tube and ears (experienced in swallowing), hoarseness, a short, frequent, harassing cough, with slight expectoration, and a slight fever of the remittent kind, having its evacuation towards evening. The fever is seldom pronounced, but the restlessness, irritability, exhaustion and mental depression are marked and usually disproportionate to the bronchial complication. In other cases there are soreness, tightness and pain beneath the breast-bone, a sense of suffocation and danger of capillary bronchitis or pneumonia. These unfortunate complications are the chief causes of death from influenza and occur mainly in the aged, in invalids and in delicate children. The usual duration of mild cases is from three to five days, of grave cases from seven to ten days. The termination of the disease is often as sudden as its onset and frequently occurs with a critical and profuse perspiration or diarrhœa. In healthy persons the mortality from uncomplicated influenza is very slight.

INFLUENZA, TREATMENT OF

The majority of cases are mild and require no treatment. A purge at the outset may shorten the attack. More marked cases require a preliminary purgative, a low diet, the avoidance of exposure to cold, resort to hot draughts, as of lemonade or elderbloom tea, to stimulating foot-baths, to the use of Dover's powder, sweet spirits of nitre, or otherremedies to secure free perspiration, and the relief of bronchial congestion by the inhalation of steam, by ammonia, or by stimulating expectorant. Quinine is the drug of utmost value and is so efficacious in the generality of cases as to be almost an antitoxin. It is essential to adopt every precaution against complications and after effects, many of which are far graver than the influenza itself. Pneumonia or pleurisy following influenza is a condition that calls for the most unremitting attention. It is owing to the gravity of possible complications that all serious cases should be in the hands of the family doctor. Mild cases can readily be dealt with, subject to ordinary care and precaution, but if complications threaten the doctor should be summoned forthwith. During epidemics the aged and feeble should keep within doors in well-warmed rooms, and partake of quinine, ammonia and guarded but nourishing diet, as measures of prevention.

INFUSIONS

Infusions are preparations made by pouring water, either cold or boiling, over vegetable substances so as to extract their principles. The substances to be acted upon are generally prepared by being bruised in a mortar, sliced or coarsely powdered. The time of infusion varies from ten minutes to two hours, after which the fluid is strained. The following infusions are useful :—

Cinchona Bark, Infusion of.—Take of yellow cinchona bark, bruised, half an ounce ; boiling water, half a pint. Infuse in a covered vessel for two hours and strain. *Dose.*—One to three tablespoonfuls. This infusion possesses the strengthening properties for which cinchona bark is noted and may be used during convalescence from acute diseases.

Diuretic Infusion. Take of dried foxglove leaves, half a drachm or thirty grains ; boiling distilled water, half a pint. Infuse in a covered vessel for an hour and strain. This infusion is usefully employed as a diuretic and may be administered in doses from a dessertspoonful to one or two tablespoonfuls according to circumstances.

Linseed, Infusion of.—Take of linseed half an ounce ; liquorice root, sliced, two drachms ; boiling water, a pint. Infuse for four hours in a covered vessel and strain. When taken in large quantities, this infusion acts as a mild diuretic and is useful in inflammation and irritation of the urinary organs. Honey or sugar candy may be substituted for the liquorice root and it may be flavoured with lemon, when it will form a useful demulcent drink in recent coughs.

Senna, Compound Infusion of.—Take of senna leaves, an ounce and a half ; ginger root, sliced, a drachm ; boiling water, a pint. Infuse for an hour in a covered vessel and strain. This is a safe, stimulating purgative, useful in constipation. Generally, some saline purgative, as Epsom salts, is given along with it, the infusion of senna being made the vehicle. It may be given in doses of one or two ounces.

INFUSIONS, BITTER TONIC

The following are excellent and simple bitter tonic infusions for household and home use. These preparations may be taken in doses of one or two ounces twice or thrice a day. They all act as bitter tonics and stomachics and are useful in indigestion and general debility.

Calumba.—Take of calumba root, cut small, half an ounce ; cold distilled water, half a pint ; place in a covered vessel for an hour and strain.

Gentian.—Take of gentian root, sliced, half an ounce ; dried orange peel, bruised, coriander seeds, bruised, of each a drachm ; boiling water, twelve ounces. Macerate for an hour in a covered vessel and strain.

Quassia.—Take of quassia chips, a drachm ; cold distilled water, half a pint. Macerate in a covered vessel for half an hour and strain.

INHALATION

This is a method of introducing remedies into the system which has advantageously come into vogue. Some of the substances given in this way are nominally in a gaseous state and only reduced to the fluid condition for the sake of convenience in stowage. Such is nitrous oxide, the favourite dental anæsthetic. Others, again, are substances which very readily pass from the fluid to vaporous condition; such are chloroform and ether. These substances are used to deaden pain or overcome sensibility generally ; but what are technically termed inhalations are substances which, nominally solid or fluid, can be made to evaporate and so act as local medications to the lungs and air tubes. Conium, creasote, and hydrocyanic acid are given this way. To enable the substances to be volatilized, and this too, at a suitable temperature, proper vessels have been made called inhalers. One of the most useful was the invention of Sir Morell Mackenzie. It consists of earthenware. An outer vessel containing water and an inner, with a tube,containing the volatile material to be inhaled. The outer vessel is filled with hot water and suffered to cool to 100° F. The tube of the inhaler is then applied to the lips and inhalation goes on. The heat is kept up by an ordinary night-light. This apparatus answers well, but it is rather expensive. In a great number of cases, however, an ordinary jug, a towel and hot water will suffice. The patient should be told to put some of the material to be inhaled in a jug with hot water, to place it close to the mouth and cover head and all with a towel. The smoking of stramonium, fumigation by sulphurous acid, and the inhaling of the fumes of nitrate of potash paper are all modifications of this process.

IN-KNEE

See Knock-Knee.

INSANITY

(Latin, **in,** "not"; **sanus,** "sound").

Insanity or mental derangement is well known to mean unsoundness of mind. There are two states of insanity and in reality but two. The one state is characterized by an unrestrained behaviour, by an irritability which urges the patient on in an extravagant pursuit of something, real or imaginary, to the ruin of himself, or the annoyance of his friends; and ultimately leads him, if opposed in his disordered wishes, to acts of extreme violence. This is what many physicians call mania or madness and others the high state or sthenic form of insanity. The other state is marked by an unusual lowness, sometimes amounting to despair, a loathing of life and everything connected with it, accompanied, too often, by an uncontrollable effort of the patient to rescue himself, by his own hand, from his real or imaginary distresses. This is the melancholy of some authors and the low or asthenic form of insanity of others. From this division it will be seen that mental derangement is generally divided by medical men into madness and melancholy.

INSANITY, CAUSES OF

The causes of this disease are a changeable climate, subject to great atmospherical vicissitudes; extremes of heat and cold; intense study, especially where the efforts of the mind are directed more exclusively in one channel; intoxication, the excessive ascendency of the factitious passions, as self-interest, ambition, pride, avarice; the struggle between the principles of religion, morality, and education on the one hand, and the passions on the other; hereditary disposition; childbirth; menstrual irregularities; epilepsy, a fruitful source; the abuse of mercury, etc. The passions and emotions most productive of this complaint are love, fear, fright, rage, ambition, reverses of fortune and, the greatest of all, domestic chagrin or family dissension. The combination of moral and physical causes is much more commonly the origin of insanity than is either of them singly. Some medical men consider moral causes greatly to predominate, in number and force, over the physical; others look on bodily disease as the chief foundation of the complaint in the generality of instances. Whether the derangement assume the form of madness or melancholy is owing rather to the constitutional disposition of the person affected than to the nature of the exciting cause; for the causes above noticed are alike applicable to both forms of the disease, sometimes giving rise to one modification and sometimes to the other. The causes of insanity do not always act directly on the brain; more frequently, on the contrary, they are preying on some organ at a distance. The disease is either continued, intermittent, or remittent. A certain change in the countenance, with a sense of general lassitude, sleep, natural appetite, softness of skin, freedom of the secretions and excretions, and a return of moral feeling, are indicative of approaching recovery. This will be perfect if, with the return of reason, the patient resumes his usual affections, habits and general demeanour and disposition. But if, on the other hand, the sleep, the appetite, the secretions and excretions come back to their usual healthy standard, without a corresponding sanity of mind, the disease is likely to pass into a chronic state, or fatuity itself.

INSANITY, CURABILITY OF

Cures are effected in about one in three cases. It is in the first month that there is the greatest probability of success. It would appear that in the first two years of insanity the greatest number of cures are performed; that the average curable period is somewhat less than a year; that after the third year there is not above one in thirty cured. The most favourable epoch of life for cure of the disease is between the age of twenty and thirty. After fifty there is little chance. Madness is more frequently cured than melancholy. In all mental aberrations, if bodily indisposition is not apparent, the chance of cure is hereby diminished. "It is a well-established fact," says Dr. Forbes Winslow, "that seventy, if not eighty, per cent. of cases of insanity admit of easy and speedy cure, if treated in the early stage, provided there be no strong constitutional predisposition to cerebral and mental affections, or existing cranial malformation; and, even when a hereditary taint exists, derangement of mind generally yields to the steady and persevering administration of therapeutic agents, combined with judicious moral measures, provided the first symptoms of the malady be fully recognized and the cerebral condition be combated, without loss of time, by remedial treatment."

INSECTS IN THE EAR

Annoyance is sometimes occasioned both to adults and children by the entrance of insects into the ear. It happens now and then that flies, ants, bed-bugs, small insects and the like get into the ear. Most commonly it is a fly that gets into the ears of children. This will cause great fright and considerable pain and sometimes the peculiar irritation in the ear may produce a convulsion. Syringing and the use of sweet-oil are useful, since they either smother or remove the offender.

INSECTS, STINGS AND BITES

See BITES AND STINGS.

INSOMNIA

(Latin, **in**, "not"; **somnus**, "sleep").

Persons actively engaged in literary pursuits, whose occupations absorb a large amount of nervous energy, are subject to conditions of insomnia. It is said that Paganini rarely slept, so entirely was his mind occupied night and day in his intense passion for music. Boerhaave is recorded not to have closed his eyes in sleep for a period of six weeks, in consequence of his brain being overwrought by intense thought on a profound subject of study. There is no symptom, when viewed in relation to the health of the brain and mind, that requires more careful and unremitting attention than that of insomnia, or wakefulness. It is one of the most constant concomitants of some types of incipient brain disease and, in many cases, a certain forerunner of insanity. Insomnia should not be neglected or trifled with. If dealt with when the conditions first set in, a great deal of suffering and anxiety may be averted. Should the symptoms increase in severity the doctor should be consulted at once.—*See* SLEEPLESSNESS, HOW TO CURE.

INSPIRATION

See DIAPHRAGM.

INTEMPERANCE, A DISEASE

Intemperance in the use of stimulants and narcotics is more commonly than not a disease, or a symptom of cerebral disorder of some kind. Like other diseases of the brain, it may be inherited—may skip over two or three generations and break out in a family that supposed it had long been delivered from its curse. Like other chronic nervous diseases, it is very obstinate and sometimes incurable. Like other chronic brain diseases, it needs both medical and metaphysical treatment—medicine for the congested or exhausted brain, as well as rest, relaxation, advice, care, watchfulness, exhortation and in some cases compulsion. Medical or metaphysical treatment alone will not avail to cure epilepsy, or neuralgia, or paralysis, or insanity. But though intemperance is oftentimes a disease, it is not always so. It appears in two forms : one is a symptom of a diseased state of the brain ; the other is a symptom of a viciously organized, but entirely healthy, brain. The one we may call intemperance from disease, the other intemperance from habit, through bad organization and surroundings. Intemperance from disease is the form which is most frequently found among the intellectual and the cultivated ; intemperance from a bad organization, weak character, self-indulgence and folly is the form which is most frequently found among the ignorant and degraded, and among the so-called criminal classes ; and yet both forms appear in all grades of life.

INTERMITTENT FEVER

See AGUE.

INTERMITTENT FEVER

See FEVER, CHARACTERISTICS OF.

INTERNAL EAR

(Latin, **internus**, that which is within).

The internal ear is often called the labyrinth, on account of the complexity of its communications. It comprises the vestibule, an anterior part, as implied in its very name ; the cochlea, or snail-shell, lying in front of the vestibule ; the semi-circular canals which lie behind it, and the auditory nerve, or nerve of hearing, lying beyond, between it and the brain, which sends nerve-branches to it.

INTESTINE, LARGE

(Latin, **intestinus**, " internal " ; from **intus**, " within ").

The large intestine extends from the end of the small intestine, near the right groin, to the end of the bowels, otherwise the anus. It is about five feet in length and has the following course : first, it mounts upwards from the small intestine to the under side of the liver, passes directly across to the left side of the abdomen and then descends into the lower part of the abdominal cavity, where it takes a sudden turn, known as the sigmoid flexure, and there becomes the rectum, or straight intestine, which is the last portion, and ends in the anus. Mounting upwards in the right side of the abdomen, passing across the upper part and then turning down on the left side, the large intestine folds itself around the small intestine. The large intestine is divided into three parts—the cæcum, the colon and the rectum—and is an important part of the human subject.

INTESTINE, SMALL

The small intestine is about twenty feet long. It begins at the right-hand end of the stomach, just under the liver, and ends down near the right groin. It is divided into three parts—the duodenum, the jejunum and the ileum.

INTESTINES, INFLAMMATION OF THE

This disease is denoted by acute pain in the abdomen, increased upon pressure, and shooting in a twisting manner around the navel ; by obstinate constipation, tension of the abdomen, vomiting, etc., as the inflammation happens to be in the superior or inferior part of the intestines ; the vomiting being generally bilious, dark-coloured, or fœtid. Fever likewise attends it, with a quick, hard, contracted pulse, great prostration of strength and high-coloured urine. The disease either gradually abates and goes off, or terminates in ulceration or gangrene. It is often attended with considerable danger and may terminate in gangrene in the space of a few days and sometimes of a few hours, from its beginning. This event is marked by a sudden remission of the pain, sinking of the pulse, shrinking of the features, suppression of urine, hiccough and distension of the belly. If the symptoms appear to yield to the means employed, the pain abating gradually, natural stools being passed and the pulse becoming firm and equal, a favourable termination may be expected. A copious discharge of loaded urine, and a universal perspiration, are favourable symptoms.

INTESTINES, INFLAMMATION OF THE, CAUSES OF

The suppression of perspiration, by the application of cold to the feet, or exposing the body to cold when overheated, etc. ; acrid or irritating substances introduced by the mouth ; obstinate costiveness ; violent passions of the mind, are the most frequent causes. It is most apt to occur at an advanced period of life and is very liable to a relapse.

INTESTINES, INFLAMMATION OF THE, DISTINCTION OF

This disease is distinguished from colic by its being accompanied with fever and a quick, hard, small pulse and by the pain being increased on pressure—symptoms which do not occur in colic. In inflammation of the stomach, the pain is seated higher in the region of the abdomen and is of a peculiar burning kind ; the vomiting and hiccough are more severe and the dejection of mind and prostration of strength much greater.

INTESTINES, INFLAMMATION OF THE, TREATMENT OF

The treatment of inflammation of the intestines should be at once entrusted to the physician. It is of far too serious a nature to admit of any delay in affording relief and steps to secure this should be taken under the direction of the medical man.

INVALID FURNITURE AND UTENSILS

In diseases that are chronic, or threaten to last a long time, and in certain ailments of a highly specialized description, a number of utensils to serve particular purposes is sure to be required, besides furniture calculated to increase the comfort of the invalid or the convalescent. Such articles as bronchitis kettles, spray atomisers, and bedpans may be needed in most households, but ear syringes, ear trumpets, ear mirrors, laryngoscopes, of course, will only be procured when the doctor deems them essential, and most doctors probably will prefer to use their own appliances, just as they prefer to use their own forceps, lancets and other surgical instruments. In the matter of furniture much may be done to render the patient's inevitable but involuntary detention endurable. Such devices as the adjustable reading-easel and bed-table speak for themselves and the victim of gout will be thankful for the gout stool or the self-propelling chair. For patients slowly recovering from illness characterized by extreme prostration the recumbent chair is an extremely useful article, since by its means they are enabled to change their rooms during tardy convalescence. Another point in its favour is that it can also be converted into a couch-bed. Though opinions may differ, theoretically, as to the wisdom of teaching babies to walk by means of the go-cart or walking-horse, such an apparatus is of undoubted service to the hard-wrought mother, since it provides absolute safety for the infant, keeping it out of mischief, tumbles and the fireplace and does, moreover, actually teach it to walk. Water beds, air cushions and water pillows are the essential furniture of the bed in several of the most serious fevers and other kinds of inflammation. Most of these articles are illustrated in the Plate of Invalid Furniture.

INVALIDS, PASSIVE EXERCISE FOR

See EXERCISE, PASSIVE, FOR INVALIDS.

IPECACUANHA WINE

See MEDICINES, HOME.

IRIS

(Latin, **iris,** "the rainbow").

The iris is acted on by the stimulus of light, which is shown by the contraction of the pupil when a candle is brought near the eye, or when exposed to a strong glare of light. The anterior and posterior chambers of the eye communicate through the opening of the pupil.

IRITIS

Iritis, or inflammation of the iris, often destroys sight by closing the pupil and shutting off the light from the interior of the eye. This very rarely happens if the disease is promptly and skilfully treated, but it is often marked by an accompanying inflammation of the conjunctiva; the patient thinks, perhaps, it is only a cold and neglects it till the mischief is done. It should always be suspected when, in an acute inflammation of the eye, the sight is decidedly diminished and there is some pain in the ball and particularly in the brow. The latter is always more severe at night.

IRRITATIVE FEVER

See FEVER, CHARACTERISTICS OF.

ITCH

See SCABIES.

ITCHING OF THE SKIN

See PRURITUS.

JAUNDICE

(French, **jaune,** "yellow").

This can hardly be looked upon as a separate disease, though, as a symptom of disease, it is so grave and important as to be usually ranked as a distinct malady.

JAUNDICE, SYMPTOMS OF

The essential feature of jaundice is a yellow colour of the skin, due most frequently to an absorption of the colouring matter of the bile and its circulation along with the blood. Whatever, therefore, obstructs and prevents the flow of bile into the intestines will give rise, sooner or later, to jaundice. Jaundice may occur as a symptom of chronic or acute inflammation of the liver. Fits of anger, fear, or alarm have sometimes been directly followed by an attack of jaundice. The symptoms come on gradually or suddenly. If gradually, then there is progressive loss of appetite, with headache and depression; there are also some nausea and a sense of weight in the stomach. If it come on suddenly, the patient may make the discovery, on looking in the glass of a morning, that he is yellow. The colour is most marked in the whites of the eyes. At the same time, the urine becomes of a rhubarb tint and stains the linen; whilst the fæces are whitish or clay-coloured. The skin itches and there is a bitter taste in the mouth. Digestion is interfered with and sometimes every object seen seems of a yellowish hue. Jaundiced people, it is commonly said, see things yellow. This, however, is the exception rather than the rule, and it seems to depend on some enlarged and tortuous vessel crossing the transparent part of the eye when the vision has been previously impaired by disease. When this malady lasts long, the brain-power is weakened and there may be stupor or delirium whilst the nutrition of the patient suffers and he becomes thin and weak. Sometimes there is a tendency to bleed from various parts. All this may speedily pass away, or grow more and more aggravated, till the patient becomes almost black. At the same time there may be excruciating pain, particularly if a gall-stone be the cause of the jaundice, or pain may be entirely absent.

JAUNDICE, TREATMENT OF

The treatment to be adopted for the jaundice will depend entirely upon the cause of the obstruction to the flow of bile. But suppose we take a common case of obstruction from catarrh of the bile ducts, or obstruction from emotional causes. This last form of the malady will pass away spontaneously; but both may be aided by medicines. Of all remedies adapted to the complaint, rhubarb and soda or potash seems best. Then, as there is ordinarily some stomachic derangement, a little ginger added is an improvement and some spirit of chloroform aids to make the whole sit easily. Sometimes sulphate of magnesia, with sulphate of soda, does good; but the treatment must vary with each case. The diet should be light and nutritious, beef-tea, fish, chicken and similar foods may be taken, but fatty foods must be avoided, and only a minimum of starchy and sugary foods allowed. Cold water, peptonised milk and milk and soda are the best drinks, but all intoxicants must be given up. Some recommend, in these cases of chronic obstruction, that pigs' bile should be given about the period when stomach digestion has ceased. Doubtless this would aid in the transformation of the food and the preservation of that which has to be discharged, for the fæces in these cases are not only colourless, but putrescent.

JAW, DISLOCATION OF THE

The jaw is sometimes thrown out of joint by the mere act of yawning —an accident that is reported to have once happened to a gentleman in opening his mouth to make the usual response at church. The word was cut short at the first syllable; for in such cases the chin suddenly drops and is thrown forward and it is impossible by any effort to shut the mouth. This distressing but irresistibly ludicrous accident may be relieved immediately by any bystander wrapping a napkin round his thumbs and placing them firmly against the back teeth, so as to press them downwards, while with the fingers and palms the chin is steadily raised and pushed backwards. But the operator should be on the alert to withdraw his hands the moment the jaw snaps back into its place, or he may receive a very unpleasant intimation of the success of his efforts. Non-professional people are sometimes apt to mistake dislocation of the jaw for lock-jaw. When the jaw is dislocated it remains widely open and the patient is unable to shut his mouth. A laughable instance is recorded of a person singing very loudly at a concert, who suddenly became silent and was found staring with his mouth wide open. At first people thought he was mad, but at length it was discovered that he had dislocated his jaw.

JAWS, UPPER AND LOWER

The upper jaw is known as the superior maxilla and the lower as the inferior maxilla or mandible, which is the largest and strongest bone of the face. It consists of a curved horizontal portion (the body), and two upright portions, called the rami (Latin, *ramus*, " a branch "). In infancy these upright portions form an obtuse angle with the horizontal portion ; in the adult, almost a right angle, the angle becoming again obtuse in old age. It is these modifications in the lower jaw which to a large degree give the characteristic forms to the face in infancy, maturity and in old age. The closing of the jaws is effected by four pairs of strong muscles—two attached to the outer, and two to the inner side of the rami of the lower jaw. The peculiar articulation or jointing of the lower jaw in man allows of a variety of movements, in keeping with the diversified character of his food, as well as with other and varied uses.

JEJUNUM

The second or central portion of the small intestine, between the duodenum and the ileum, is called the jejunum, because it is generally found empty after death. It is about eight feet long.

JOINT

A joint, or " articulation," as it is sometimes called, is the junction or union of any two adjacent parts of the body. Usually the term is employed to signify the connexion established between contiguous bones. It is by the joints that the bones are knit together to form the skeleton. Joints may be immovable, movable, or mixed.

KIDNEYS

The kidneys—for there are, or ought to be, two of these organs in every person—are of a dark red colour and resemble in shape the kind of bean known as the kidney bean. They are about four inches long and two and a half inches wide, are situated one on each side of the spine, in the back and upper part of the abdominal cavity, their upper half stretching across the two lower false ribs, and having their upper end in contact with the lower side of the diaphragm. It is owing to this fact—their contact with the diaphragm—that pain is felt in breathing when the kidneys are inflamed. The office of the kidneys is to secrete the urine, which is collected in little tubes and poured into what is called the pelvis of the kidney—a cavity in its centre —whence it passes out through the ducts or tubes called the ureters (one leading from each kidney), and is emptied into the bladder, which is situated in the bottom of the abdominal cavity. The kidney is composed of two parts : an external or cortical portion and an internal or medullary. The medullary portion consists of a number of pyramids, called the Malpighian pyramids. The bases of these pyramids are in contact with the cortical substance ; their apices project into the calyces and form what are called the papillæ. The cortical substance is surrounded by a fibrous envelope, which closely invests its surface. Each kidney receives its supply of blood from the renal artery, the branches of which enter at the sinus.

KIDNEYS, BRIGHT'S DISEASE OF THE

This is a name applied to several affections of the kidneys which are dependent on an altered condition of the blood, and generally associated with dropsy and with albumen in the urine and hence it is often known as albuminuria. The origin of Bright's disease, indeed, is always in the blood and this fluid in turn becomes still further altered by getting contaminated with materials which ought to pass off by the kidneys, but which are retained in the system ; the blood also becomes poor in quality by being daily drained of albumen—one of its most important constituents. Pallor, loss of flesh, debility and defect in the general nutrition arise from this cause. The disease, which is so called because it was first described by Dr. Bright, may be either acute or chronic.

KIDNEYS, BRIGHT'S DISEASE OF THE, ACUTE, SYMPTOMS OF

Acute Bright's disease may occur from a cold, from a blow, from taking substances, like turpentine or cantharides, which irritate the kidneys ; but more usually it follows some acute febrile disturbance and more especially it is associated with scarlet fever. About the second or third week after the onset of scarlet fever, the patient may find his urine of a dark porter colour and rather diminished in quantity : at the same time he may feel lassitude, probably slight pain across the loins and there may be puffiness of the eyelids and loose part of the skin. If kept in bed, the urine in a few days becomes paler, but still looks very cloudy and deposits a copious sediment on standing : when boiled a flocculent precipitate is thrown down because the albumen which is present becomes coagulated. At times convulsions occur, which may be very numerous and end fatally : at the same time less water is passed.

KIDNEYS, BRIGHT'S DISEASE OF THE, CHRONIC, SYMPTOMS OF

In chronic Bright's disease the symptoms, other than those supplied by boiling the urine, unless dropsy exists, are, as a rule, so obscure as to be recognized only by the practised physician. Whilst acute cases usually recover under suitable treatment, chronic cases are indeed incurable, though with great attention to health and judicious professional care and advice life is in many cases prolonged for several years. In every instance medical aid must be had.

KIDNEYS, BRIGHT'S DISEASE OF THE, TREATMENT OF

Hot baths do good by causing

sweating and giving free action to the excretory power of the skin ; they may be given at bed-time and repeated every night : the water should be of a temperature of from 95° to 98° F., and the patient may remain in it for from five to ten minutes, then be quickly dried and put to bed. Purgatives should be given, such as compound jalap or compound scammony powder. Rest in bed in a warm room is most important, nor ought the patient to think of leaving his room until all the dropsy and acute symptoms have subsided. Light nourishing food may be taken, as bread and milk, beef-tea, fried sole, broth, a little mutton, rice pudding, arrowroot and gruel.

KIDNEYS, BRIGHT'S DISEASE OF THE, TREATMENT OF, IN RECOVERY

During convalescence great care must be taken to avoid cold. Flannel should be worn next the skin. Moderate exercise may be taken and a nourishing diet, but no stimulants must be allowed. Tonics containing iron and quinine will relieve the debility and the anæmia.

KNEE, DISLOCATION OF THE

In dislocation of the knee, the situation of the displaced bone is obvious to the sight and extension is to be made upwards by the thigh-bone and downwards by the fore-leg, while the bones are replaced by pressure with the hand. Compound dislocations of the knee generally demand immediate amputation.

KNEE, SPRAINS OF THE

Sprains or ricks of the knee are very common and very painful, setting up great swelling in the articulation. The treatment, of course, depends upon the severity of the injury ; if there be much pain and inflammation, leeches, hot fomentations and poultices ; in all cases, perfect rest. Cold lotions, lint soaked in tincture of arnica, and well-applied bandages, are the best methods of curing the results of the accident. The patient must not get about *too* soon.

KNEE-PAN, FRACTURE OF THE

See PATELLA.

KNOCK-KNEE

One of the most common of deformities is knock-knee, or in-knee (*genu valgum*). This disease is met with in individuals of all ages and may be described as an in-giving of the knee-joint, in consequence of the weakness of the ligaments and muscles connecting and surrounding the articular extremities of the ilium and tibia. The affection consists in an inward projection of the lower extremities of the thigh-bones, and a more or less considerable outward divergence of the legs and feet. Great deformity is thus produced and the patient experiences much difficulty in walking. The knees constantly strike against each other and the foot is turned outwards, so that the inner edge is applied to the ground.

KNOCK-KNEE, CAUSES OF

Knock-knee is caused by weakness and yielding of the ligaments and sinews about the inner aspect of the joint and the affection is increased by walking and standing. It is met with in workmen who carry heavy loads, or in those accustomed to wheel heavy barrows. Sometimes tall, rapidly growing lads are the subjects of knock-knee (especially just before the age of puberty) without having had any previous tendency to it ; too much exercise, or fatigue, and the breathing of vitiated air are associated with the causes. But it affects most commonly weak, unhealthy children of the poor classes, who live in towns, and is due in these subjects to general weakness and poverty of the blood, engendered by bad quality or insufficient supply of food. Indeed, the most common predisposing causes of this malady seem to be insufficiency or improper quality of food, or its imperfect assimilation. In many instances the earliest link in the chain of causation has been an error in the infant's diet, namely, the substitution for an insufficient supply of breast milk, of farinaceous food boiled in water, with the addition of little, if any, cow's milk. Sometimes we may discover a hereditary influence. It is not an uncommon thing to see knock-knee in small delicate prematurely-born children ; the limbs, in consequence of general weakness, having yielded to the superincumbent weight of the trunk. After a while the deformity increases so much that the child becomes incapable of walking without crutches or other support. It often shows itself while the child is still in arms, but is made much more apparent and increases rapidly in extent after the child begins to walk. Knock-knee and rickets are often associated. When undue use is made of one leg and too much weight thrown upon it, in consequence of disease or injury in the other limb, one-sided knock-knee may be produced.

KNOCK-KNEE, TREATMENT OF

This deformity when it occurs in rapidly growing and overworked young people may be remedied by rest and cold douches. If discovered early in infants, the best treatment is fresh air and good and suitable nourishment. The patient should not be allowed to move about on the floor until the unnatural prominences at the inner surface of the knees have disappeared. Slight cases will recover, with proper attention to diet and general health, and the discontinuance of teaching the child to walk prematurely. The recumbent position at times during the day, a soft pad between the condyles of the femur, and the ankles drawn towards each other by a bandage, are useful aids. In more severe cases splints or irons, as made by the instrument-makers, must be worn. Care must be taken to employ daily friction and manipulation, to prevent the knee from becoming stiff in an extended position. Lonsdale treated knock-knee on the same principle as a crooked rickety leg, by adapting a long, well-padded splint to the outer side of each limb, securing it below by straps and buckles at the outer ankles and above by a broad belt, to which both splints were attached and which was buckled round the body at the level of the hollow part of the loins. The splints must not come too far forwards and should bear well against the trochanter and outer ankle. Meanwhile the knee must be drawn into its proper place by a band buckled over it and wide enough to embrace both the head of the tibia and condyles of the femur. In severe cases, in older children, it will be necessary to apply to the outer surface of each limb either a padded wooden splint long enough to extend from the hip to the foot, to which the limb is to be bandaged ; or irons furnished with a ratchet screw and fixed by means of buckles. The treatment demands much care and patience and, to be effectual, must in severe cases be continued for eighteen months or two years. The deformed limbs should be well rubbed and bathed with cold water every morning and the child's general health should be kept up by good living and, if possible, a prolonged sojourn in the country or by the sea-side.

LABOUR, ACTUAL

When labour pains have become acute, the nurse (already in the house), will send for the doctor and put her patient in bed. The doctor will direct her to lie on the left side, in the position indicated in Section 6 of the article entitled "Labour, Preparations for." If, till now, the patient has had her dressing-gown on, it should be laid aside.

1. *Frequent Desire to Pass Water.*—About this time—that is, before labour has advanced very far—there will frequently be experienced a constant desire to pass water, and with the occurrence of each pain a small quantity may be forced from the bladder. These calls to micturition must not be disregarded and for this purpose the doctor will occasionally leave the room. Should this desire to make water not be present, as sometimes occurs when the ordinary duration of labour has been exceeded, the doctor should be told of the circumstance, as it may be necessary for him to interfere actively in order to relieve the bladder. If the calls to pass water are unheeded, it accumulates in the bladder, which, becoming distended, may act as a serious obstacle to the progress of labour. In addition to this, however, there is the possibility that by such neglect an inflammatory state of the bladder may be lighted up and the foundation of much after-suffering be thus laid.

2. *Cramps of the Leg.*—By pressure of the child's head upon the nerves which pass to the lower extremities severe cramps of the leg and thigh are apt to be set up as labour advances. They are a source of great annoyance to the patient by reason of the suffering to which they give rise. When this painful condition is present, friction with the warm hand, or by means of a piece of flannel heated at the fire, will generally give relief. Should these fail, friction by means of a little soap liniment may be employed instead. As these pains often aggravate the anxiety of the patient, care should be taken to afford her freedom from them.

3. *Sickness.*—Sometimes, also, during the early part of labour a woman may be troubled with sickness and often vomits. Unless the vomiting be accompanied by collapse and a cessation of the labour pains, its effect will be beneficial rather than otherwise.

4. *Duration of Labour.*—"How long will it be till labour is over ?" is a question that is frequently put by the lying-in-woman to the doctor. As this question is one which is almost impossible to answer, except evasively, it should not be pressed. The duration of labour varies greatly, almost no two cases being exactly alike, and about the most that can be said is that first labours are generally considerably longer than others.

5. *Food During Labour.*—During the first part of labour no restriction should be put upon the diet, but as labour advances it will be advisable to abstain from solid food altogether. Articles of diet of a fluid nature will now answer much better and nourishment may be administered from time to time in the form of a little milk or beef-tea. Beyond these there will be nothing

else required, unless the patient should complain of thirst, in which case a little cold water, toast-water, or gruel, may be given and will be found very serviceable for this purpose.

6. *Character of the Pains.*—During the latter part of labour the pains become altered in character; they have now more or less of an expulsive power about them which they did not possess while the dilatation of the mouth of the womb was going on. They are now spoken of as bearing-down pains and, while they last, the muscles of the abdomen are brought into play and the patient, catching hold of something with her hands and pressing against a fixed point with her feet, bears down and so assists the expulsive efforts of the womb.

LABOUR, PREPARATIONS FOR

Among the principal points to be regarded in preparations for labour, the following require careful consideration and attention.

1. *The Breasts.*—For about six weeks previous to the time the woman expects to be confined she should attend to the condition of her breasts. She should begin to bathe the nipples with a little brandy and water, or eau de Cologne and water, in equal proportions, or with a little tincture of myrrh; she should then expose them for five or ten minutes to the air. By so doing the nipples will will be hardened and rendered fit for suckling.

2. *Attendants.*—Some months before the patient is expected to be confined she should consult her doctor, and engage a monthly nurse. Should she undertake this duty without consulting the doctor, she should inquire amongst her friends and select as nurse a person who is thoroughly qualified for the work. In addition to the nurse, the only other attendants that should be found in the lying-in room are the doctor and a female friend. Generally the patient's mother is the one who is chosen to wait upon her at this time; but there are cases in which it would be better, and greatly to the patient's advantage, were some other person chosen for this office. The doctor should be sent for whenever the patient becomes conscious of the presence of actual labour pains. In those who have already borne children, we would especially advise that this be not delayed, because in such cases nature is frequently working quietly for some time and on the occurrence of a few severe pains the child has been born. It is, at any rate, always safer to call in medical aid too soon than too late and, besides, the doctor will be the best judge as to the length of time labour is likely to occupy and so can go or remain, as he may think fit.

3. *The Bedroom.*—The room in which the patient intends being confined should not be chosen without previous thought. As regards size, the room should be ample and one which will permit of thorough and efficient ventilation being carried out during the lying-in month. For this purpose it must be provided with an open fire-place. Without this it is impossible to carry out any efficient system of ventilation. If the confinement takes place in summer, there will be no necessity to keep the fire burning throughout the lying-in month, unless the weather be cold and damp; but if there is no fire, care must be taken to see that the chimney is not stuffed up, as is frequently done, to prevent the entrance of too much air.

4. *The Bed.*—The best kind of bedstead to have in the lying-in room is one made of iron. It should not stand above three feet from the ground and the mattress should be of horse-hair. The fewer curtains about the bed the better. A large sheet of mackintosh, or other waterproof material, should be placed above the mattress to protect it and above this a blanket and then a sheet. Next there should be a folded sheet to place under the patient as a draw-sheet, which is to be removed when labour is over. A sheet or large towel should also be taken and folded so as to form a kind of rope for the patient to pull by when the pains assume a bearing-down character. This should be fastened to the foot of the bed, to one or other side, or it may be fixed to the far corner of the head of the bed if preferred. A small cushion should also be provided, against which the patient may press her feet during the presence of a pain. Neither the towel nor the cushion should be made use of till the pains have become bearing-down, otherwise the patient may exhaust her strength needlessly, by exercising it before the proper time.

5. *The Dress of the Patient.*—This should consist of a chemise, from which, on going to bed, the patient will withdraw her arms, so that it may be slipped off without difficulty on the completion of labour, and a petticoat, which is also to be removed when labour is over. A clean chemise should also be put on when the patient goes to bed. This is to be folded well up under the arm-pits, so that it may not be soiled during delivery, and may be clean and comfortable when drawn down afterwards. Over this the bed-gown should be placed and folded up in the same manner as the chemise. Over all a dressing-gown may be worn during the early part of labour ; but this had better be dispensed with when the patient goes to bed. Some women wear their stays during labour for the purpose of giving themselves support ; but as they are useless and frequently in the way they should not be kept on.

6. *Position During Labour.*—If now the doctor has arrived, or if the pains have become so severe, that the patient is unable to remain up longer, she should go to bed. The position she is to occupy is the one in which she will be delivered, and ought to be upon the left side, with the head and shoulders nearly in the centre of the bed and the hips about a foot distant from the edge. The knees should be drawn up. The patient, when placing herself in bed, must be careful to attend to these rules ; they will add materially to her comfort and to that of the doctor.

7. *Examination by the Doctor.*—The patient being now in bed and occupying the position already described, the doctor will request that an examination be made, or that he be allowed to "try a pain," as it is called. As many young women, from feelings of false delicacy, object to this examination being made and place the doctor in a very awkward position, a few words of caution may be said with reference to its necessity. To make such an examination is very necessary, for the following reasons :—1. It enables the doctor to ascertain whether or not labour is actually begun and, if it is begun, to what length it has proceeded. 2. It enables him to know whether or not everything is right—that is to say, whether the child is presenting in the most favourable manner ; and should anything

be wrong, this may be the best opportunity to rectify it, or at any rate it will be the best time for the doctor to make up his mind in regard to what he thinks necessary to be done. 3. If everything is right and labour has already advanced a considerable way, it will give the doctor the pleasure of communicating this to the patient and so relieve her mind of much anxiety.

LABOUR, REST AFTER

See REST AFTER DELIVERY.

LABYRINTH

See INTERNAL EAR.

LACHRYMAL GLAND AND SECRETION OF TEARS

(Latin, **lacrima** or **lachryma**, "a tear").

Tears are secreted by a gland called the lachrymal gland, which is situated above the eyeball and underneath the upper eyelid on the side nearest the temple. Six or seven exceedingly fine channels flow from it along and under the surface of the eyelid, discharging their contents a little above the delicate cartilage which supports the lid. It is these channels or canals that carry the tears into the eye. Tears do not flow only at certain moments and in certain circumstances, as might be supposed ; their flow is continuous ; all day and all night (although less abundantly during sleep) they trickle over the surface of the pupil and eyeball, giving them that bright enamelled limpid look which is one of the characteristic signs of health. It is the ceaseless movement and contraction of the eyelids that effect the regular spreading of the tears ; and the flow of these has to be constantly renewed in the way just mentioned, because tears not only evaporate after a few seconds, but also are carried away through two little drains, called lachrymal points, situated in the corner of the eye near the nose. Thus, all tears, after leaving the eyelids, flow into the nostrils and, if the reader wish to assure himself of this, he has only to notice, unpoetical as the fact may be, that a person after crying much is always obliged to make a twofold use of his or her pocket-handkerchief.

LACTEALS

(Latin, **lac, lactis**, "milk").

The lacteals open on the inner surface of the intestines and suck up or receive what is called the chyle, a milk-like fluid of which the blood is formed, and convey it to what is termed the thoracic duct. In their course they perforate the middle and outer coats of the intestines, pass through the mesentery and mesenteric glands and terminate in this duct. The lacteals are an important set of vessels, for it is through their agency that the chyle, or nutritious part of the food, is separated from the refuse, or innutritious, and conveyed to the blood to nurture and replenish the system.

LANCING GUMS

See TEETHING OR DENTITION, DIFFICULT.

LARYNGITIS, ACUTE

Laryngitis is the name employed to designate inflammation of the larynx. Acute laryngitis is a severe inflammation of the larynx, very apt to be confounded with croup when it occurs in children and with various other affections in both children and adults. It is exceedingly dangerous to life, because a moderate amount of swelling accompanying severe inflammation which would be of much less immediate importance in any other part of the body, is liable here to close up the narrow air-passages to such a degree as to interfere with breathing and thus lead to death by choking or suffocation. This affection is an inflammation of the lining of the larynx, due usually to sudden exposure to cold in a person subject to severe sore throat, or recovering from some disease in which the throat has been affected. It also occurs, in similar circumstances, during the chronic sore throat that attends many cases of consumption of the lungs. Sometimes it is due to prolonged or violent screaming, or other excessive use of the voice ; sometimes to inhaling some noxious matters in the air ; sometimes to extension from some local disease in the mouth or jaw, as an inflamed gum during teething and the like. Sometimes it is the result of the poisonous action of certain drugs, when given in excess or injudiciously, especially those containing mercury, antimony and iodine. In some cases the inflammatory action is confined to the larynx ; in others it is associated with similar disease in the windpipe, or in the upper part of the throat. The great danger in this disease is the formation of a dropsy of the tissues, which become filled with watery fluid which has oozed out of the blood-vessels, and then flap like loose bags upon the top of the windpipe at each inspiration and so prevent due access of air to the lungs.

LARYNGITIS, ACUTE, SYMPTOMS OF

The disease usually begins with a chill, soon followed by fever and then by sore throat. The patient complains first of pain in the larynx, which is increased by talking, coughing, or access of cold air to the parts ; and there is after a while a sense of constriction, as if something had got into the top of the air-passage, or were squeezing it from the outside. Sometimes there is spasmodic catching of the breath. These signs are soon followed by actual difficulty of breathing. The voice is hoarse and its exercise often painful. The sounds of breathing become harsh, as in croup. There is a similar sort of cough, too, usually accompanied by expectoration of phlegm or mucus, which gives relief for the time being. Mild cases usually get well in from five to eight days, or more ; but they are liable to become severe suddenly. There is no way of absolutely determining the condition of the parts without examining them by means of a mirror placed in the back part of the throat, so as to reflect the light down (LARYNGOSCOPE) ; but the general symptoms and history of the attack are usually sufficient to indicate its nature.

LARYNGITIS, ACUTE, TREATMENT OF

The treatment requires the assiduous care of the doctor and valuable time may be irreparably lost by attempting home treatment. Pending the arrival of the doctor, the patient should be put to bed (the room being heated to 70° F.) with iced cloths around the throat and bits of broken ice should be at hand for almost constant use in the mouth ; while a smart purge of half an ounce or an ounce of Epsom salts for the adult should be promptly administered, so as to produce one or more full watery evacuations from the bowels. After recovering from an attack of acute laryngitis, great care should be exercised for some weeks in avoiding everything which might be liable to induce sore throat.

LARYNGITIS, CHRONIC

This is a chronic or long-continued inflammatory disease of the larynx, or larynx and windpipe, which may simply involve the lining and covering mucous membrane, or lubricating glands in the membrane, or the tissues beneath, including the blood-vessels, nerves, muscles and even the framework or skeleton of the parts. Sometimes it follows as the result of one or more attacks of the acute inflammatory affection of the same part. Sometimes it is part and parcel of a chronic bronchitis, or inflammation of the air-passages generally. Sometimes it is due to over-use or abuse of the voice ; sometimes to the irritating effect of dust and other matters inhaled. Sometimes it is part of a certain variety of consumption of the lungs, in which case it is popularly known as consumption of the throat ; but it is not positively known to exist in this form unless the lungs are already in a state of disease. Chronic laryngitis of all kinds is more frequent in adults than in children and in males than in females.

LARYNGITIS, CHRONIC, SYMPTOMS OF

When the disease is confined to the mucous membrane, it is usually in what is known as the catarrhal form, characterized by an excessive secretion of mucus or phlegm, which is expectorated by coughing. There are occasional or temporary sensations of pain in the parts, with more or less hoarseness, and in some cases a certain and variable amount of impairment in swallowing ; but the general health is fairly good, unless the amount of secretion is very great and exhausting. The expectoration of mucus is usually greatest on rising from bed in the morning, to evacuate the accumulation over night. The affection is sometimes associated with various forms of chronic sore throat. The only means by which the disease in its consumptive form can be detected in its earlier stages is by the use of the laryngoscope, a little mirror passed into the mouth so as to reflect the image of the parts upon its surface. A pallid condition of these parts, with evidence of glandular swelling at the top of the windpipe, always indicates the suspicious character of the affection ; and if there is impairment of the lungs and a consumptive family history, there is rarely any doubt as to its nature.

LARYNGITIS, CHRONIC, TREATMENT OF

The treatment of the disease consists in all those measures of invigoration which are practised in consumption of the lungs ; with such local treatment, by inhalation and otherwise, as the condition of the larynx and windpipe may require. These can only be judiciously instituted under the supervision of the doctor. Attempts at home treatment, without medical advice, are injudicious and likely to cause the loss of valuable time ; for it is only in its earliest stages that the disease is at all susceptible of cure. Many cases of sore throat, with loss of voice, cough and difficulty in breathing and in swallowing, are attributed to this throat consumption, when they are really due to some other and more remediable cause.

LARYNGOSCOPE

To understand the position and character of the vocal cords, we should, if possible, look down upon them from above. The invention of the laryngoscope of Manuel Garcia enables us to do this. The laryngoscope (larynx-viewer) is a simple mirror, which has a handle, and resembles a spoon. It is placed right at the back of the mouth, over the throat. Besides this there is a reflector, which a person operating upon himself holds in front of his mouth and within view of his eyes. On the first mirror is shown the inside of the throat ; the second receives a reflection of the first and thus the whole machinery of the larynx is exposed to view. The operation is more difficult than it seems ; for it is not easy to adjust the mirrors and keep them in place while singing ; and the wide-open mouth that is necessary takes all pleasantness from the tone. Firstly, we may look down and see the glottis, or slit between the cords, open as in breathing. The voice is now silent. Secondly, we may see the lips or vocal cords vibrating in their whole breadth and thickness, and producing what some voice-trainers (but not all) call the "chest register," but what might rather be called the "thick register," because it is produced by the whole thickness of the cord vibrating. The reader will hardly need to be told that the voice never originates either in the "chest" or the "head," as the nomenclature of some writers and voice-trainers would lead us to suppose. It has its origin always in the vocal cords in the windpipe. Thirdly, we may see the thin edges of the vocal cords vibrating alone, and producing what is sometimes called the "falsetto," or "throat" register, but which would be better named the "thin register," because of its being produced by the thin edges of the vocal cords. By means of the laryngoscope, the naked eye may clearly see the fluttering of the vocal cords in the thick register ; but in the thin register the vibrations are too rapid to be seen. The cords appear to stand close together.

LARYNX

The larynx, which is guarded by the epiglottis, is the vestibule or entrance into the windpipe (trachea). Through the larynx, then, must pass all the air that is drawn into the lungs by inspiration and exhaled from them by expiration.

LAUDANUM

Poisoning by laudanum, which is a preparation of opium, is frequently the mode of escape from life resorted to by suicides, no doubt because, in certain doses, it is known to produce sleep, stupor and perfect insensibility. Opium in its various forms being in such continual use as a medicine, is the poison, too, which is most frequently swallowed by mistake ; its dangerous and sometimes fatal effects also from an overdose are a frequent consequence of ignorance and rashness. The symptoms of an overdose are drowsiness, stupor and an uncontrollable disposition to sleep ; and if the quantity taken be sufficient to prove fatal and no means of relief are resorted to, the state of stupor becomes so great that no efforts are available to arouse the sufferer to consciousness ; distressing sickness comes on at intervals and violent contortions and convulsions at length close the scene. To opium we have no antidote. The early treatment consists in evacuating the poison by emetics and the stomach-pump, and in arousing the patient to exertion by walking him about, and by every other means in our power ; and further in the use of stimulating glysters, which will both rouse the patient and expel such part of the poison as may have passed into the lower bowel. The secondary treatment, which, it must never be forgotten, is not only not applicable, but is actually detrimental, till after the efforts made to evacuate the stomach and bowels have been effectual, is the frequent administration of a glass of lemonade or vinegar and water, and a cup of very strong coffee. When, therefore, you are satisfied that a person has taken this poison, you will immediately give as an emetic, a scruple of sulphate of zinc or white vitriol, or four to ten grains of sulphate of copper, if either be at hand ; but if not, three tablespoonfuls of flour of mustard mixed with water, or as much common salt. In the meantime, it is to be hoped that the surgeon has been sent for, with orders to bring with him the stomach pump. When, by either of these means, the stomach has been thoroughly emptied and washed out and the bowels emptied by two or three copious cathartic glysters, you will proceed to give the acid drink or coffee every quarter of an hour or half-hour at first, and then at longer and longer intervals, allowing the patient now to indulge in sleep in these intervals, if the propensity still continue. We have no chemical tests by which to prove the presence of opium ; but the smell of it in the breath of the patient, and more particularly in the matter first thrown off the stomach, will frequently confirm the suspicions excited by the peculiarities of the symptoms.—*See* also MEDICINES, HOME.

LAVEMENTS, OR CLYSTERS

These used to be looked upon with disgust and horror and had recourse to only on extraordinary occasions; now they are in common use. As a means of obviating habitual constipation they are employed by some persons daily, with the effect of unburdening the large intestines more or less. "However efficient they may, in this respect, appear to be, I have found," says Dr. Burne, "from long observation, that they are not free from very great objection. In the first place, they do not continue to relieve the bowels fully and freely for any length of time ; in the next place, they do not dispose the bowels to resume their natural action, but, on the contrary, render them more confined ; in the third place, they wash off the mucus from the intestines, which is followed by a degree of irritation and an unpleasant sense of heat, very similar to that which occurs after washing the hands in water simply; in the fourth place, the fæces become more scybalous and hard under their use ; and, lastly, the individual does not feel the comfort or conviction of having had his bowels fully relieved, on which account he is often induced to resort to a second lavement on the same day. Lavements fail in completely obviating or curing constipation." Nevertheless, they are an excellent occasional resource ; where, for example, a person has been disappointed of his usual evacuations, or where he is unable, in consequence of his engagements or of other circumstances to take a habitual aperient, lest it may act at an inconvenient moment. In this case, a lavement used in the morning relieves the bowels for the day and is a great comfort. Or if, whilst travelling, the bowels become unusually constipated and yet it is not convenient, or scarcely possible, to venture on medicine sufficiently strong to act, then a lavement is of essential service and often prevents absolute indisposition. The fluid to be injected should be of a bland nature, as barley-water, thin gruel, linseed tea, or milk and water ; but, inasmuch as these are not always at hand, persons invariably end by using merely warm water, which has an injurious and irritating effect upon the mucous membrane of the rectum. Those in the habit of taking lavements should give attention to this subject and make a point of using one of the bland fluids above mentioned. Cold water is less hurtful to the intestines than warm ; half a pint injected every morning has proved of essential service. Cold is an indefinite term, the temperature of what we understand by cold water varying many degrees during the season. In the summer, cold water in the dressing-room would be 60° F. in temperature ; in the winter, it may be as low as 40° F. ; the summer temperature is proper. The quantity injected should vary from half a pint to a pint and a half, which the sensations of the individual must determine.

LAXATIVES

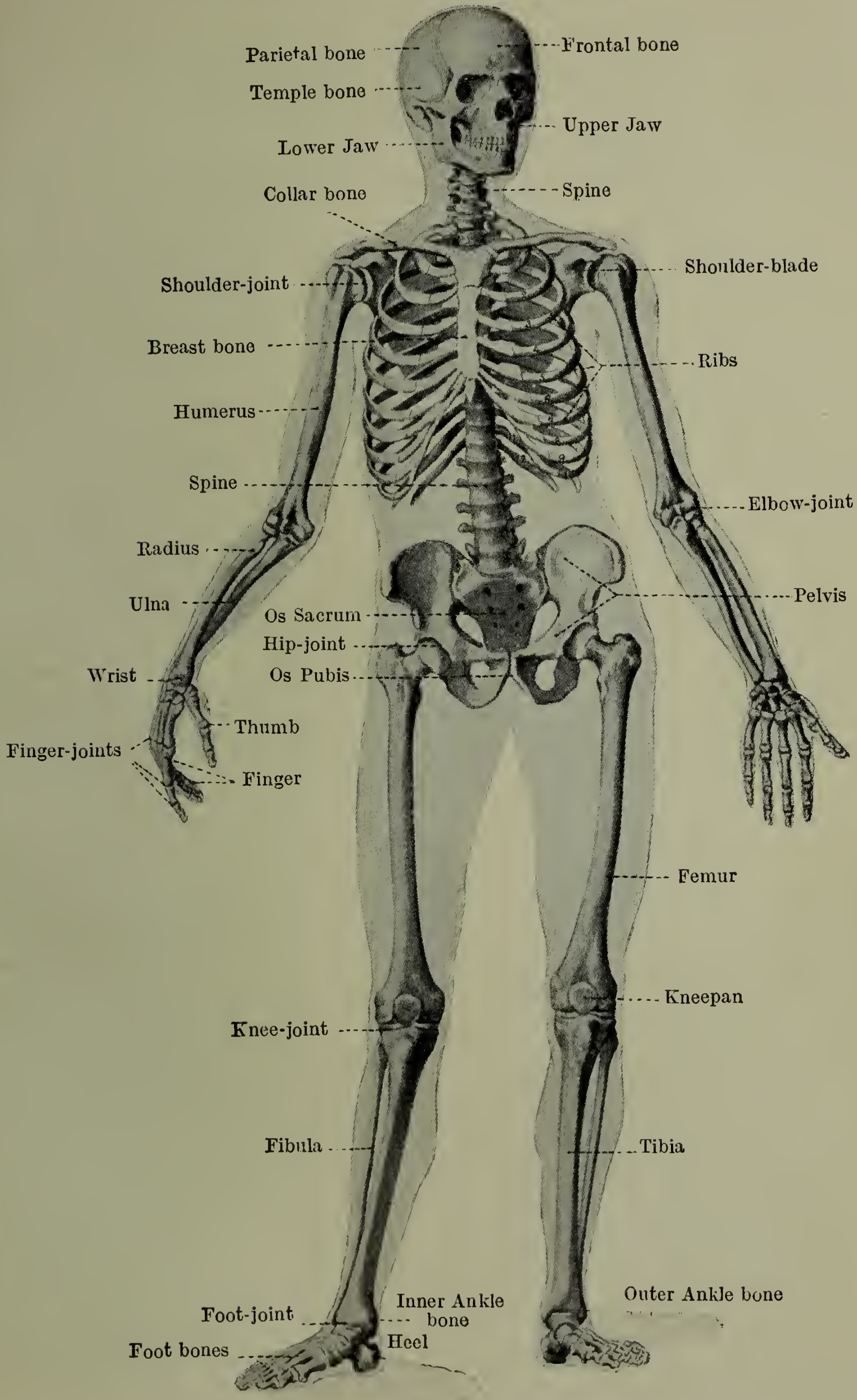
(Latin, **laxo,** "I unloose").

Laxatives are remedies which gently open the bowels, so that they are inclined to be loose, but no more. There is thus a distinction drawn between such and purgatives, which purge, and cathartics, which are supposed to act still more strongly. As it is highly desirable in all cases that the least power should be employed, laxatives should be employed when it is necessary to open the bowels artificially, if this will suffice. In many instances, however, they will not, and something stronger will be necessary ; but powerful opening medicines are apt to be followed by the very condition they have been used to get rid of and so the latter state is something worse than the first. Sometimes a change of diet will act as a laxative. Thus, if the food has been too concentrated, that is to say, if there has not been a fair amount of indigestible matter in it, the bowels are apt to become confined. In this way the use of brown bread instead of white bread will often suffice to regulate the bowels and procure a daily motion. Figs and prunes are inclined to be laxative, especially the latter state manna, tamarinds and cassia even more so. But the most convenient for use are flowers of sulphur, castor oil and magnesia, or its carbonate.

LEAD, POISONING BY

Poisoning by lead occurs more frequently by accident than design, and seldom from any other preparations than white lead and sugar of lead, each of these articles being in frequent use in the arts, the latter being sometimes employed for fraudulent purposes. White lead is the basis of most of the paints commonly employed, and as it affects the human frame injuriously through the lungs and the skin, as well as when taken into the stomach, manufacturers of white lead, plumbers and painters, who are all much exposed to the fumes or emanations of white lead and also to contact with it in the preparation and use of their paints, are seriously and sometimes fatally affected with the disease called painter's colic. Sugar of lead, which is an acetate of lead, is said to be frequently used to diminish the acidity of light wines and also in the clarifying of wines and spirits. Goulard's lotion is also an acetate of lead in a liquid state ; these preparations are therefore the occasional sources of poisoning by lead either through ignorance or mistake. When a large dose of these or other preparations of lead is taken

SKELETON OF MAN (*Front View*).



into the stomach, it produces sickness, vomiting and violent pains, both in the stomach and bowels, like an overdose of corrosive sublimate or other metallic irritant.

LEAD, ANTIDOTES FOR POISONING BY

The antidotes for poisoning by lead are sulphate of soda or Glauber's salt, sulphate of alumina or alum, and the carbonates of potash or soda, which should be, therefore, administered freely in an abundance of warm water ; and if they do not speedily produce vomiting, you may give, as an emetic, the sulphate of zinc, or white vitriol, the proper dose of which is a scruple.

LEAD PIPES, HOW RENDERED SAFE

A certain amount of saline impurity, especially of the sulphates and chlorides of the alkaline earths, must be present in order to render river-water safe from contamination by lead pipes, if these are used for distributing the liquid, as they are in most large cities and towns. The way in which these soluble salts act is not by directly preventing the water from dissolving the lead, but by forming with the metal an insoluble coating over the inner surface of the water-pipe, which mechanically precludes the water from having any action on the metallic surface. It is on account of the very purity of rain-water from these saline compounds that lead pipes, or lead-lined cisterns, should never be used for its conveyance or its retention ; and many cases of obscure and dangerous illness in country houses have been traced to neglect of this precaution against the admission of a potent cause of disease into the system.

LEAD IN WATER, TEST FOR

See WATER, CHEMICAL TESTS FOR METALLIC IMPURITIES IN.

LEAD, POISONOUS EFFECTS OF

Lead is a very common poison—one of the most common. Its poisonous effects are felt by workers in lead mines, by painters, by those who grind and polish flint glass containing lead, by enamellers, and to some extent by type-founders and printers. Those suffer most who have to do with the process of dry-grinding colours. The " body " which lead gives is so much thicker than that of zinc that the latter does not as yet supersede it, although the zinc whites are daily becoming better known and more generally used. Colic is one of the most constant effects of lead-poisoning. There is another symptom which is still more disabling, consisting of a palsy of the muscles, usually beginning with those which enable a person to open his fingers and throw the hand back, so that subjects of this palsy go about with their wrists dropping like those of a kangaroo or a dog begging. In fact, it is popularly called wrist-drop.

LEAN, HOW TO GROW

In the overwhelming majority of cases excessive fatness is caused either by an excess of food or an insufficiency of exercise, generally by both. There is undoubtedly an hereditary influence in the direction of leanness or corpulency, but it will be found that nearly every fat person is either a large eater and drinker, or very indolent. One rarely sees a fat farm labourer, because their work is heavy and their food too often scanty, whereas fat brewers' draymen are the rule, for their work is light and their consumption of food and beer excessive. There are, no doubt, some people with so small a tendency to corpulency that they can eat freely and take little exercise without becoming unduly fat, but such cases must not be taken as a guide by those whose natural tendency is to put on fat.

The treatment of obesity therefore consists in three things: the limitation of the diet, the exclusion of alcoholic drink, and the taking of regular and abundant exercise. The destruction of fat is considerably increased by work, and perhaps the best form of muscular work for those who wish to reduce their fat is regular daily uphill walking. There is no drug which will reduce the weight except by impairing the functions of the digestive organs. None of the expensive advertised remedies are of the slightest value. As to diet, it will be seen that each individual case must be considered. In the mildest cases, that is, those of people who are getting a little stouter than they desire, the dieting is comparatively a simple matter. Sugar should be avoided altogether, saccharine or saxin being used instead. Bread, potatoes, and other starchy food should be taken only in very small quantities, and alcohol in any form must be altogether eschewed. Dr. Cautley has drawn up a diet for persons suffering from obesity which is of great use as giving an idea of the quantity and variety of food which may be taken in an average case.

7–7.30 a.m.—One orange, apple or pear, half a pint of water.

8–8.30 a.m.—Tea, 5 to 6 ounces, milk, half an ounce, sweetened with saccharine. One or two boiled or poached eggs. Dry toast or bread, one to one and a half ounces; butter, quarter ounce.

11–11.30 a.m.—Clear soup or butter-milk, eight to ten ounces.

1–1.30 p.m.—Cold fowl, lean meats, ham or tongue, or hot lamb cutlet or sweetbread, three to four ounces; salad, one ounce; Dutch cheese, quarter ounce; celery, radishes, etc.; rye, brown, bran or gluten bread, half to two ounces; butter, half ounce; fresh fruit or water, four to six ounces.

4.40 p.m.—A large cup of plain tea, with a dessertspoonful of milk; one piece of dry toast or bread and jam, or eaten with lettuce, mustard and cress or tomato.

7.30 p.m.—Clear soup, four ounces; fish, cooked without butter or any kind of meat, game or poultry except pork, four to six ounces; green vegetables, of a caloric value not exceeding five per ounce, ad lib.; or smaller amount of those with a higher calorific value, say one to two ounces; farinaceous pudding, three to four ounces; water melon or the cooked unsweetened fruit out of a tart; dry toast or various breads, one ounce; butter, quarter ounce; water, four to six ounces; a glass of hot water at bedtime.

LEECHES, HOW TO MAKE THEM TAKE HOLD

When leeches are to be applied to a part, it should first be well washed. If they refuse to take hold, moisten the surface with a little cream, milk, or fresh blood. Sometimes when they persist in refusing to bite, if they are put into a plate with some beer and then held firmly by the tail, they will fix themselves almost immediately.

LEECHES, TO MAKE THEM RELAX HOLD

When leeches have taken their fill, they usually drop off; but sometimes they will stick on for a long time. In such a case the application of a little salt will cause them readily to relax their hold. Bleeding may sometimes be kept up from constant movement of the part to which leeches have been applied. Thus, frequently in cases of pleurisy leeches are applied to the sides and on their removal the constant movement of the ribs during inspiration and expiration sometimes prevents coagulation of the blood in the wounds and leads to hæmorrhage. There are also some parts of the body more liable to bleed freely than others; thus, where the skin is thin, this may occur; and lastly, there are people with a peculiarity of constitution which makes them liable to bleed most profusely on the slightest prick. In such, leeches should be employed with very great caution.

LEECHES, WHY APPLIED

Leeches are applied for the purpose of removing a small quantity of blood from any locality in which it is inconvenient to use any other means of blood-letting, but they should never be applied immediately over a large vein, for fear of inflammation or troublesome bleeding.

LENTIGINES

See FRECKLES.

LEUCORRHŒA, OR WHITES

(Greek, **leukos,** "white"; **rheo,** "I flow").

During pregnancy many women suffer from a troublesome discharge which goes by this name. This discharge, although it may exist during the early months of pregnancy, most frequently proves a source of annoyance to the patient in the later months. Like so many of the affections from which the pregnant woman suffers, it is produced by the pressure of the enlarged womb and is the result of the congested state of the parts to which that pressure gives rise. It manifests itself most severely in the case of those who have had children rapidly and whose constitutions are not of the most robust kind. If small in quantity, it may not call for much attention; but if the discharge is great and allowed to go on unchecked, it gives rise to disagreeable excoriation of the external parts from its irritating nature. If it is not very excessive, the employment of a daily injection of tepid water, of water to which some Condy's fluid has been added, or with the addition of one or two teaspoonsfuls of powdered alum, will generally serve to keep it in abeyance and relieve the patient of annoyance. Should the discharge be more excessive, the injection must be repeated more frequently, thus, night and morning, or three times a day. When the discharge is very profuse, the patient must frequently resume the recumbent position, lying every day for two or three hours upon a hair mattress or a sofa, and sleeping at night upon a horse-hair mattress in preference to a feather bed. There must be no overloading with blankets when in bed; rather have too few than too many. The injection must of course be applied as in the less severe forms and in all cases must be administered gently, no force being employed, as it might prove dangerous. Attention to cleanliness is of paramount importance. Should such remedies as have been mentioned, after receiving a fair trial, prove unavailing in checking the discharge, medical advice should be sought, as a predisposition to miscarriage may be induced if it be allowed to go on unchecked. Attention must also be paid to the general health. The diet should be light, nourishing and unstimulating. Stimulants of every kind must be avoided. The patient should retire to rest early. The condition of the bowels must also be attended to, and, if constipated, they must be regulated by the administration of some mild laxative.

LICHEN

Three varieties of the skin disease known as lichen are now recognized —lichen simplex, lichen ruber planus and lichen scrofulosorum. Lichen simplex is very like papular eczema and some writers make no distinction between them. It is an eruption of small inflammatory pointed papules, red and very itchy, located mainly on the extensor surfaces of the limbs ; also on the body, mainly on the back. In lichen ruber planus—the only distinctive kind of lichen which Sir Malcolm Morris recognizes, the other varieties being merely forms of eczema, miliaria, prickly heat and other skin affections—the papules are much larger, are flat on the surface, and may even be slightly depressed in the centre. They are more of a pinkish purple, with whitish top and have a great tendency to become grouped together, forming even quite large patches. They appear often first about the wrists, especially on the inner, or flexor, surface. The eruption is a very chronic one, though quite curable. Lichen ruber is the same eruption as lichen planus, only much more aggravated. Nothing is known as regards the causation of lichen as far as diet, etc., are concerned ; but it may be the result of nervous shock or emotional disturbance. It is neither contagious nor hereditary. The treatment must be left to the doctor. Hebra and Kaposi regard arsenic (in Fowler's solution for children and in pills for adults) almost as a specific ; Besmier and Sir Malcolm Morris have their doubts on the point, the latter finding the biniodide of mercury useful.

LIGAMENTS

(Latin, **ligo,** "I bind").

Ligaments are strong white fibrous cords, or bands, which connect bones together at the joints and hold them in their places. They are of various breadths and sometimes are so interwoven as to form a broad layer which entirely surrounds the joint like a bag. In this case they are called capsular ligaments and serve the purpose also of preventing the escape of the synovial fluid, which is intended to lubricate the part. The shoulder joint is surrounded by one of these capsular ligaments. Ligaments also serve to keep the liver, spleen and other organs in their place. Like the bones, they possess but little sensibility when in a healthy state, but when attacked by inflammation they are extremely painful.

LIGHT

Next in importance to securing for the sick-room a sufficient supply of pure air, it should be our endeavour to see that it is also amply provided with light. An Italian proverb says, "Where the sun does not enter, the doctor does," and another says, "All disease comes with the shade and gets well by daylight." These maxims may seem exaggerated, but they possess a considerable foundation in fact. There are, of course special cases, such as diseases of the eye, where the plentiful supply of light would prove absolutely injurious. If the light be too strong for the patient's eyes, it can easily be modified by means of a green blind. As light, when excessive, acts as a direct excitant upon the brain and nervous system, those who wait upon the patient must see that, in acute diseases, where there is nervous excitement, the room is properly darkened, and he is shielded from what might prove injurious ; but in cases of debility, in chronic diseases and during convalescence, the sun's rays are ever welcome and exercise the most beneficial influence alike on mind and body. The manner in which the bed is placed in the room should be carefully attended to. It must not be so placed that the patient has to strain himself every time he wishes to look out of the window, but must be so situated that he is able to do so without making any effort. It is very important that the patient should be able to see out of the window, especially if it command a pleasant view. At night, care must be taken to place the lamp, or whatever is employed for the purpose of artificial illumination, in such a position that the eye does not suffer. In the case of children, attention to this is very important, for a lamp carelessly placed may cause shadows about a room which may make the child frightened and uneasy and exert a hurtful influence upon it. All flickering lights should be at once removed from the sick-room, otherwise their presence cannot fail to have a disturbing influence.

LIGHT, ADMISSION OF

Besides air, houses should admit plenty of light. Hence big windows should be procured, if possible ; if the light proves troublesome by its excess, it can easily be shut out. All denizens of towns should have as many windows as possible in their houses, as well as skylights and other means by which the sun's rays may enter into their dwellings. The peculiar construction of many houses, necessitated by the long parallelogram of the plots and proximity of the buildings, although not the most favourable to sources of light, is still not necessarily so conducive to darkness as it is often alleged to be. Bow-windows might be generally adopted and the admission of light into the house more favoured. The blind, though indispensable, perhaps, in the hotter, should be rarely used in the cooler, seasons. The impenetrable shades, heavy curtains, and other contrivances for the production of darkness and the accumulation of dust are not favourable to health. Sunshine, it must always be remembered, is the microbe's deadliest enemy. Why, then, foster the microbe and shut out the sun ?

LIGHT AND SLEEP

Light has a very unfavourable influence in preventing sleep and therefore complete darkness should be secured as far as possible ; if, from any cause, lights in the bed-chamber are necessary, they should be feeble and the face of the sleeper carefully shaded from their rays. A sunny exposure may be regarded as advantageous to every room, whether used by day or night. As this, however, is not always practicable, it can be dispensed with better in the bed-chamber than elsewhere, as darkness is an essential requisite of the sleeping apartments. Heavy window-curtains, however, are objectionable for the same reason as weighty bed-hangings. An easily movable shade, just sufficient to temper the too intrusive light of dawn or glimmering of the moon, is better than thick drapery of any kind, barred shutters, or close blinds.

LIGHTNING STROKE

Lightning will generally strike the most prominent object near it and, if this chance to be a conducting body, it is carried off to the earth and may do no harm; in other cases it may strike the chimney of a house and do serious harm to the walls and inmates, especially if there is a conduct to the supports which are made of metal and inserted between the stones or bricks of the walls. Death by lightning is instantaneous, as a rule, and leaves nothing to be done; there is generally a mark as of being burnt and articles like a watch or coins may be partially destroyed. At times a man walking along a road is killed; and in these cases it seems to be due to what is called the "back-stroke," a condition in which the discharge of electricity having taken place, the man himself is a conductor of the earth's electricity, being the most prominent object, at that spot, on the earth's surface. A thunder-storm often frightens people most alarmingly and sometimes temporary blindness will come on, after vivid lightning, in an individual who is not struck.

LIME WATER

See MEDICINES, HOME.

LINIMENTS

See EMBROCATIONS.

LINSEED, INFUSION OF

See INFUSIONS.

LINSEED MEAL POULTICE

See POULTICES.

LINSEED TEA

Take two drachms of liquorice root bruised and an ounce of linseed and put them into a jug with a pint of boiling water. Allow the jug to stand near the fire for four hours and then strain through muslin or calico. Take care not to bruise the linseed. This decoction forms a useful demulcent drink in cases of cough and affections of the urinary organs.

LIPS

The lips, which are fleshy folds surrounding the orifice of the mouth, and the cheeks, with which they are continuous, forming the sides of the face and the boundaries of the mouth, are composed of true skin externally and mucous membrane internally, between which are the muscles which produce their movements; also blood-vessels, nerves, and small bodies called mucous glands, having ducts or tubes opening by minute orifices upon the inner or mucous surfaces. These glands secrete a fluid which helps to lubricate the mouth.

LIVER

The liver, which is a gland and the largest gland in the human body, is of a brown-red colour and in a healthy person weighs nearly four pounds. It is situated in the upper portion of the abdominal cavity, mainly in the right side, under the ribs, and is divided into two principal lobes, called the right and left. Its upper surface is convex, or rounded, and corresponds to the concavity of the diaphragm to which it is attached by several ligaments. Its lower surface is hollow, or concave, and is in connexion with the stomach and duodenum. Its right lobe is principally thick and massy, but its left is thin and spreads itself smoothly over the stomach. In some diseases the liver becomes enlarged and indurated, or hard, and may be felt projecting below the ribs on the right front of the abdomen and sometimes even on the left. It may, however, be pushed down by the diaphragm so as to appear like an enlargement in diseases of the chest, as dropsy, when the liver itself is not diseased. It is materially altered in its texture by the processes of disease, becoming in some cases quite soft, and in others extremely hard and firm, and in some instances it acquires an enormous size, weighing from ten to twenty pounds. The liver is supplied with blood-vessels,nerves and absorbents. With regard to size, it averages from ten to twelve inches long from right to left, and six or seven inches from front to back, while it is about three inches thick in its thickest part, which is at the right end. The liver is held in its position by five strong ligaments and is in many senses the most important organ of the whole body. It is not difficult to find animals without eyes,without ears,without stomach, without lungs, without heart, but it is very difficult to find an animal without a liver. This organ plays a very important part in the economy of all animal bodies. It secretes bile, which is important in the process of digestion. In addition to this, it performs a vital service, namely, it gives birth to blood globules. But besides secreting bile and forming blood globules, the liver has also the power of elaborating from the blood which traverses it a substance called glycogen or animal starch. This substance is stored up in the cells of the liver and served out by it in larger or smaller quantities, not in the form of glycogen, but in the form of grape sugar, into which substance it has now become converted. This peculiar change is brought about by the action of a ferment which the liver itself appears to supply and the grape sugar so formed passes away in the blood to the lungs, where it is burned off.

LIVER, CIRRHOSIS OF THE

(Latin, **cirrus,** "curl").

Cirrhosis of the liver is the name given to a disease in which that organ becomes smaller and firmer than usual. It is known most commonly as the "hob-nailed," or "gin-drinker's" liver. Cirrhosis occurs but rarely in children, but is not uncommon in adult life. Amongst the many evils caused by drunkenness, this gradual wasting of an important organ must take its place ; in other cases shrinkage seems brought about by syphilis, or by other diseases where there has been going on for some time a deterioration of the blood.

LIVER, CIRRHOSIS OF, SYMPTOMS OF

This disease is always chronic in its course and begins somewhat insidiously. Loss of appetite, sour risings from the stomach, a feeling of sickness in the morning and fœtid breath are often the earliest signs ; and the skin, in addition, may have a slightly jaundiced colour. The patient may go on for many weeks or months without being much distressed ; but he will notice that he is gradually losing flesh and that his strength is failing. After a time the abdomen will become distended, because the circulation through the liver is obstructed ; the patient is then said to have "dropsy of the abdomen." The veins also over the surface of the abdomen become very full and the skin is marked over with blue ramifying lines. The patient is usually emaciated and the skin has a sallow, yellow colour ; the pinched expression of face and the absence of fat under the skin contrast markedly with the distended abdomen. The patient feels weak and cannot undergo any exertion ; his appetite is bad and the tongue dry and red ; the presence of the dropsy prevents him from breathing with ease and the tightly-stretched skin gives him pain ; generally, too, the intestines are very full of gas and so flatulence adds to his discomfort.

LIVER, CIRRHOSIS OF, TREATMENT OF

In the early stage, before dropsy comes on, the patient must abstain from all stimulants ; the food he takes must be light and nutrient ; cold milk for breakfast is generally borne well on the stomach, with some dry toast or biscuit or bread soaked in it. Mutton and roast beef may be taken ; but pork, salt beef, cheese, pastry and vegetables are not good. If a chop or steak, or a piece from a joint, cannot be taken, strong beef tea, or broth, or chicken, etc., may be given ; coffee is better than tea, while cocoa, with milk, forms a pleasant beverage. Rich food and made-up dishes should be avoided. As for the medicinal treatment, that must be left in the hands of the doctor. In many cases careful diet and judicious management may prolong life for many years.

LIVER COMPLAINTS

The liver, like the kidneys and other organs, is liable to various acute and chronic diseases. Amongst the acute changes may be classed catarrh, or inflammation of the bile ducts, acute atrophy of the liver, congestion and inflammation of the liver and the presence of gall-stones in the hepatic duct. Amongst chronic changes may be enumerated cancer, cirrhosis, fatty and waxy degeneration, passive congestion, syphilitic deposits, and the presence of hydatid cysts. These are all best entrusted to the doctor. The liver is the wheel of life's machine and regulates the whole mechanism of man. When it "acts"—that is, works well—then every other wheel, gland and factor works well and there is general good health ; if it does not work well, which means its becoming torpid, the whole system begins to get out of order ; the head aches, there is a bad taste in the mouth of mornings, food does not taste good, there is a poor appetite, the feet are cold, the bowels constipated, the whole body is chilly, and the least thing in the world gives a cold, while there is a miserable feeling all over. Some, but not all of these symptoms are present when the liver is torpid, to say nothing of the mental condition, which is fretful, peevish, complaining and depressed. The remedy for this state of affairs is daily riding on a trotting horse, or steady exercise or work in the open air for several hours every day to the extent of causing gentle perspiration.

LIVER, INFLAMMATION OF THE

Inflammation of the liver is denoted by tension, soreness and pain in the region of that organ, with pain about the right shoulder, difficulty of lying on the left side and a short, dry cough. This disease is usually divided into the acute and chronic inflammation of the liver ; the second variety being what is popularly called a liver complaint.

LIVER, INFLAMMATION OF, CAUSES OF

Acute inflammation is excited by all the usual causes of inflammation. People of a choleric and melancholic temperament are most liable to it ; and it is far more frequent in hot than in cold or temperate climates. Exposure to the rays of a vertical sun and to the damps of the night in sultry climates are two of its most frequent causes.

LIVER, INFLAMMATION OF, SYMPTOMS OF

If the disease is very acute, it

begins with the ordinary symptoms of chilliness, succeeded by heat, frequent, hard pulse and a furred tongue ; the bowels are irregular, mostly costive ; the evacuations little tinged with bile ; the urine is often saffron-coloured ; the skin dry ; the thirst extreme, with occasional sickness. When the symptoms are most severe and we have reason to suspect that the disease is confined to the membranes, the duration is often short and the termination is, in most cases, favourable. But when less active and seated in the substance of the liver, it generally tends to suppuration ; and if the convex side of the liver be the part affected, a tumour is visible externally, the cough becomes aggravated and there is a difficulty of breathing. If adhesions have preceded the suppuration the pus points to the skin and the abscess opens on the surface ; but if it break internally, it generally proves fatal by inducing a hectic fever ; though sometimes, in consequence of fortunate adhesions, the abscess discharges itself into the hepatic duct, which terminates in the first intestine and the pus (matter) is carried off by this channel. Usually the disease runs a favourable course. Linseed poultices and hot fomentations should be applied and the bowels kept open. Until convalescence milk and farinaceous foods must be the chief diet. During fever the following mixture should be taken thrice a day :—

Solution of acetate of ammonia, 1 drachm.
Sweet spirits of nitre, 20 drops.
Epsom salts, 20 grains.
Citrate of potash, 5 grains.
Chloroform water to 1 ounce.

After recovery more nourishing diet in considerable quantity must be taken and a tonic containing nitrohydrochloric acid (10 drops), dandelion juice ($\frac{1}{2}$ drachm) and chloroform water (to 1 ounce) should be administered thrice a day. Every form of intoxicant must be given up for good.

LOCKJAW
See TETANUS.

LOCOMOTOR ATAXY
is a disease of the spinal cord in which, while retaining muscular power, the patient is yet unable to control his muscles. In walking the legs are thrown about in a curious fashion and brought forcibly to the ground The symptoms, which set in very gradually, include lightning or shooting pains in various parts of the body, while the patient is unable to stand erect in the dark. The causation has not been ascertained, but probably intemperance and debauchery have something to do with the disease. It is incurable, though often taking years to run its course. It is alleged that a pill containing $\frac{1}{32}$ grain of Calabar bean taken every three hours daily for many months has yielded beneficial effects. But in any case the doctor alone can adequately prescribe the necessary treatment and routine for the patient.

LONG-SIGHT. *See* HYPERMETROPIA.

LOTION, APPLICATION OF, BY THREADS

There is a very simple mode of applying the property of the syphon and our knowledge of capillary attraction to the comfort and advantage of a patient who, from an accident, or from ordinary inflammation of a part, or other malady, requires the continued free application of a lotion or embrocation. It consists in introducing threads

—few or many, from a single thread to a skein of worsted—into a bottle filled with cold water or the required lotion, with one end of the thread or skein hanging from the mouth of the bottle, and then properly suspending the bottle over the affected limb or other part requiring the application. For general purposes, the quantity of worsted should be about the thickness of the little finger. A little ingenuity will devise the most commodious method of suspending the bottle, according to the position and situation of the patient and the part upon which the fluid is required to drop. If the patient be in bed, the bottle may be suspended from one of the curtain-rods, or from a cord or lath of wood, or a long stick laid across the bed from one curtain-rod to another. If the patient be on a sofa or in his chair, the bottle may easily be suspended by a stick laid across and fastened to the back of two chairs, or the back of one chair and the sofa. But the most convenient contrivance of all is a stand, made for the purpose, with a projecting arm, to any part of which the bottle may be suspended, and this arm may be made to rise and fall and be fastened with a screw, as in the construction of ordinary pole fire-screens. To make use of this contrivance, all that is required is to suspend the bottle directly over the part which is to be subjected to the application of cold, and to draw the end of the worsted far enough out of the mouth of the bottle, so that it be somewhat lower than the surface of the fluid in the bottle; or the general direction may be that the worsted touch the bottom on the inside, and be drawn below the bottom on the outside. The latter portion of the worsted represents the longer leg of a syphon and—the fine threads of which the skein consists raising the fluid by capillary attraction—there will be a constant dropping from the end of the worsted upon the affected part as long as any fluid remains in the bottle. To cause a uniform distribution of the lotion over the part to be cooled and a more extensive surface for evaporation, the scalded or inflamed part should be lightly covered with a single fold of fine cloth.

LOTIONS

Lotions are usually applied on lint or rag, which has been previously soaked in the lotion required. If it be desired to produce a cooling effect by the evaporation of the lotion, only one layer of very thin material should be used.

1. *Anodyne Lotion.*—Take of crude opium, two drachms; warm water, a pint. Rub the opium in a mortar with a little of the warm water, for a short time, after which the remainder of the water is to be poured upon it and all mixed together. This is a useful application to all painful swellings and bruises.

2. *Arnica Lotion.*—Take of tincture of arnica, half an ounce; rose-water, distilled, or common water, to make eight ounces. Dip pieces of rag in the lotion, and apply frequently. This is useful in sprains, bruises, etc.

3. *Evaporating Lotion, No.* 1.—A simple evaporating lotion is one part of alcohol to eight of water. Bay rum or eau de Cologne may be substituted for the alcohol. The following is a very good formula: muriate of ammonia, 12 grains; alcohol, 36 minims; water, 1 oz.

4. *Evaporating Lotion, No.* 2.—Equal parts of vinegar and eau de

Cologne or lavender water, diluted with an equal quantity of water and used as above.

5. *Evaporating Lotion, No.* 3.—Take of chloride of ammonia (sal ammoniac), half an ounce ; of nitre, an ounce. Dissolve in water and apply as a cooling, refrigerating lotion in recent sprains, bruises and inflammatory affections of the brain.

6. *Stimulating and Detergent Lotion.*—Take of diluted nitric acid, two drachms ; of water, a pint. Mix. This lotion is useful in cases of foul, fœtid ulcer, when there is a thin ichorous discharge proceeding from it ; also in caries of the bone.

LUMBAGO

(Latin, **lumbus,** "loin").

Lumbago is a form of chronic rheumatism, specially affecting the lower part of the back and loins. The pain is sometimes muscular, but sometimes also seems situate in the broad and strong ligament found in that region. Chronic rheumatism is rarely a malady of youth ; it is a totally different complaint from acute rheumatism and mainly affects old people who have been much exposed to cold and wet. The pain sometimes called lumbago—which may affect young people who stoop much at their work, or who have to raise heavy weights—is merely the pain of tired muscles and demands the same remedy—rest. True lumbago is quite different ; there is no feverishness with it as in acute rheumatism and it is not relieved by rest, as tired muscles are. The sufferer moves stiffly, as if he were tired, but night and day the pains continue. Sometimes the malady gets better from the application of cold ; much more frequently it is improved by heat, so that a roll of flannel affords positive comfort. There is not much difficulty in the diagnosis ; nothing, in fact, can well be confounded with it ; but the making of the diagnosis is no great comfort, for the malady is often a most untractable one.

LUMBAGO, TREATMENT OF

Broadly, it may be said that internal remedies are of little use ; carbonate of potass is worse than useless and not unfrequently the iodide is the same. Hot or tepid baths, applied even locally, do good, especially if salt water is used ; local applications are, in point of fact, the best remedies in true lumbago and as a rule they are best applied hot. Sulphur is by many praised as a local remedy, wrapped up in flannel which should be habitually warm. All exposure to damp and cold should be avoided and the diet carefully regulated.

LUMBAR VERTEBRÆ

The name given to that section of the vertebræ of the spine which lies behind the abdomen and between the dorsal vertebræ and sacrum.

LUNACY, LAW OF

(Latin, **luna,** "the moon," because insane persons were supposed to be affected by the moon's changes).

The law of lunacy is frequently broken unwittingly and the breaking of it involves heavy penalties. The care of the person and the care of the property of a lunatic are two totally different matters and must be discussed separately. So, too, the laws relating to the public and private detention of a lunatic are different, and they are different with regard to two classes of lunatics, ordinary and chancery. The only persons who may take charge of a lunatic without official interference are such as derive no profit from their charge; if they do, they are liable to a heavy penalty. If the lunatic is to be handed over by his friends to the care of any private individual, then three orders must be signed. The first is the order from the friends, here subjoined:—

FORM I.

Order for the Reception of a Private Patient.

I, the undersigned, hereby request you to receive *Mary Smith*, whom I last saw at *Grove House, Highgate*, on the *thirtieth* day of *March*, 1909 (*a*), a (*b*), person of unsound mind, as a patient into your house.

Subjoined is a statement respecting the said *Mary Smith*.

(Signed) Name . . . . *John Smith*,
Occupation (if any) . . . . . . *Builder.*
Place of abode . . . . *Grove House, Highgate*
Degree of relationship (if any) or other circumstance of connexion with the patient . . . . *Husband.*

Dated this *first of April*, one thousand nine hundred and nine.

To *Thomas Robinson, Esq.*,
(*c*) *Proprietor*, (*d*) *Cambridge House Asylum, Peckham Rye.*

(*a*) Within one month previous to the date of the order.
(*b*) Lunatic, or an idiot, or a person of unsound mind.
(*c*) Proprietor or Superintendent of
(*d*) Describing the house or hospital by situation and name.

N.B.—These various forms have been filled up, the Italics being the words inserted for this particular case.

The order must be signed by somebody who has seen the patient within a month. It should always, if possible, be signed by the nearest relative; but as these often object, a magistrate or clergyman of the parish may do so. But certain people may not sign. First, no one interested pecuniarily in the payments to be made for the lunatic may do so; that is, no one who is paid by a percentage on the payments, or is interested in any other way. For a similar reason neither the doctor of the asylum to which the patient is sent, nor any one who has any share in its profits may sign. No one who is father, brother, son, partner, or assistant to either of the medical men who sign the certificate can make the order. The order itself must be directed to the person under whose care the patient is to be placed, and under it this person may detain the patient for one calendar month, but not longer; after that a fresh order has to be made.

A statement (Form II.) accompanies the order. This contains the particulars necessary for the information of the custodian of the lunatic and the Lunacy Commissioners, who superintend all these things. The name must be given in full and every detail duly filled in; no blanks must be left, an answer must be given to all. The order and statement are accompanied in most cases by two certificates from medical men, who must be duly qualified and registered. The medical men must visit the patient separately—they must not be partners, nor may one be the assistant of the other. Neither of them must be proprietor or medical attendant of the house where the lunatic is received; and no medical man may certify whose father, brother, son, partner, or assistant is either wholly or in part proprietor or medical attendant of the asylum to which the patient is sent. Then, too, the signers of the certificate and of the

FORM II.

Statement referring to the case of Mary Smith.

If any particulars in this statement be not known, the fact is to be so stated.

Name of patient, with Christian name at length	*Mary Smith.*
Sex and age	*Female,* 30.
Married, Single, or Widowed	*Married.*
Condition of life and previous occupation (if any)	*Housewife.*
Religious Persuasion, so far as known .	*Church of England.*
Previous place of abode	*Grove House, Highgate.*
Whether first attack	*Second.*
Age (if known) on first attack	*Twenty-five.*
Where and when previously under care and treatment	*Cambridge House Asylum, in* 1904.
Duration of existing attack	*One week.*
Supposed cause	*Unknown.*
Whether subject to epilepsy	*No.*
Whether succeeding	*Yes.*
Whether dangerous to others	*No.*
Whether found lunatic by inquisition and date of commission or order for inquisition	*No.*
Special circumstances (if any) preventing the patient from being examined before admission separately by two medical practitioners	*None.*
Name and address of relative to whom notice of death to be sent	*John Smith, Grove House, Highgate.*

(Signed) Name (*e*) . . *John Smith.*

(*e*) Where the person who signs the statement is not the person who signs the order, the following particulars concerning the person signing are to be added.

Occupation (if any) . . . .
Place of abode . . . .
Degree of relationship (if any) . . . . .
Or other circumstances of connexion with the patient . . . .

order must have no business or family connexion with the patient.

The form of the medical certificate is here appended (III.). The medical practitioner must give the name and title of his diploma, and he must state which department of medicine he practises—physician, surgeon, or apothecary. He must be in actual practice; if retired from the profession, he is unfit to sign. Then, too, the date must be attended to, for the certificate is only good for seven days from the date of examination. In this certificate it is averred that the patient is one or other of three things—lunatic, idiot, or of unsound mind. These are the only terms the law recognizes and so the last is commonly used. The reasons for coming to such an opinion must be carefully stated; if they are not sufficient, the Lunacy Commissioners will reject them and set the patient free. The medical man, too, must be careful to separate what he himself has observed from what others have told him. Moreover, the examination must take place when no other practitioner is present; friends may be present, but no practitioner.

The orders, statements, and certificates having been despatched, or handed over to the keeper of the asylum, he is empowered to receive the patient, but must send off copies of all these to the Lunacy Commissioners within twenty-four hours; and again, after two clear

FORM III.

Medical Certificate.

I, the undersigned, being (*a*) a *Member of the Royal College of Physicians in London*, and being in actual practice as (*b*) a *Physician*, hereby certify that I, on the *thirtieth* day of *March*, 1882, at (*c*) *Grove House, Highgate*, in the county of *Middlesex*, separately from any other medical practitioner personally examined *Mary Smith*, of (*d*) *Grove House, Highgate, housewife*, and that the said *Mary Smith* is (*e*) a *person of unsound mind* and a proper person to be taken charge of and detained under care and treatment, and that I have formed this opinion upon the following grounds, viz. :—

1. Facts indicating insanity observed by myself.

(*f*) *She labours under delusions that she hears voices summoning her to self-destruction and sees her mother (who has been dead many years) beckoning her to heaven.*

She is restless and greatly depressed. Her pulse is slow and tongue foul.

2. Other facts (if any) indicating insanity communicated to me by others.

(*g*) *I am informed by her husband, John Smith, that she has had no sleep for some nights and has rebeatedly and in various ways attempted self-destruction.*

(Signed) Name . . . *Richard Dor, M.R.C.P.*
Place of abode . 304, *Harley Street, W.*

Dated this *first* day of *April*, one thousand nine hundred and nine.

(*a*) Set forth the qualification entitling the person certifying to practise as a physician, surgeon, or apothecary: e.g., Fellow of the Royal College of Physicians in London Licentiate of the Apothecaries' Company, or as the case may be.
(*b*) Physician, surgeon, or apothecary, as the case may be.
(*c*) Here insert the street and number of the house (if any), or the like particulars.
(*d*) Insert residence and profession or occupation (if any) of the lunatic.
(*e*) Lunatic, or an idiot, or a person of unsound mind.
(*f*) Here state the facts.
(*g*) Here state the information, and from whom.

days, he must send them his own views of the case, drawn up as a statement.

Pauper patients occupy a different category. The pauper lunatic is first to be brought before a magistrate and examined by him, with the aid of a medical man. After that he may be sent at once to an asylum on their order ; but if the order be signed by two medical men, the magistrate has no option—he must send him. The pauper, instead of being sent to an asylum directly, may be taken to the workhouse, but a certificate must be given that his is a proper case to be so dealt with. It is, however, desirable to know that patients dangerous to themselves or others may be restrained independently of the law of lunacy. Thus, by the common law, patients the subjects of delirium tremens may be so restrained. These formalities have to be taken to ensure that no sane person shall be confined as insane.

LUNGS

As regards the structure of the lungs, the general idea to be laid hold of is that the lung is simply a bag of air-cells or pockets containing air. In front of the throat we have the windpipe. This windpipe divides at the root of the neck into two branches or bronchi—a main pipe for the right lung and another main pipe for the left lung. The lungs are two in number and have the heart lying somewhat obliquely between them. It has been well observed that those who are desirous of understanding the structure of the lungs will learn more by five minutes' examination of the lungs and windpipe of a sheep or calf than from any description. It is to be observed, however, that in these the mode of death by bleeding gives the lungs a much paler colour than they naturally would present.

LUNGS, CONGESTION OF THE

is rather a condition of disease than

a disease itself and the term is often loosely used to express really either bronchitis or pneumonia. The congestion is due to the engorgement of the vessels owing to feeble circulation. In this state, generally known as passive congestion, there is some degree of fever and ultimately the engorged vessels give way and the blood invades the surrounding tissues. Active congestion precedes inflammation, and is accompanied by a good deal of pain, swelling, difficulty of breathing and perhaps spitting of blood. Bed-ridden persons, the aged, and persons greatly prostrated by long illness are apt to be troubled with congestion, the blood stagnating especially in the lower parts and back of the lungs, more particularly in the lung of the side on which the sufferer lies. Blueness of the lips, face and extremities, along with hurried, shallow breathing are sure signs of this state. Stimulants in small doses may be administered, the food should be nourishing and the position of the patient should often be changed to avert the stagnation. Congestion is a not uncommon symptom of several heart affections. It should be treated with the major trouble in all cases.

LUNGS, EXERCISE FOR THE

Exercising the voice in speaking is a useful sort of exercise and particularly serviceable to the female sex, who are more confined at home than men. Dr. Andrew pleasantly remarks that one reason why women require less bodily exercise than men is that they are more loquacious. Loud reading and speaking are also of singular benefit to literary men, affording them a substitute for other kinds of exercise for which they will seldom give themselves sufficient leisure. It is supposed that to this cause we may justly ascribe the longevity of many schoolmasters and teachers in universities, who, notwithstanding their sedentary employment and the vitiated air they daily breathe in schoolrooms, preserve their health and attain to long life. Celsus strongly recommends reading aloud to those who have weak stomachs. Singing is another mode of exercising the voice which, in moderation, may be attended with beneficial consequences, or, at least, may be useful to the lungs ; and it is also to be recommended on account of its enlivening effects upon the mind. Those craftsmen, therefore, who, from habit, almost always sing at their work, unintentionally contribute much to the preservation of their health. When, however, disease of any kind exists in the chest, exercise of the lungs in speaking, reading and singing, and also in ordinary muscular exertion, ought to be suspended or regulated by professional advice. When a joint is sore or inflamed, we know that motion impedes its recovery. When the eye is affected, we for a similar reason shut out the light ; and when the stomach is disordered, we have respect to its condition and become more careful about diet. The lungs demand a treatment founded on the same general principle. If they are inflamed, they must be exercised as little as possible, otherwise mischief will ensue. Hence, in a common cold of any severity, silence, which is the absence of direct pulmonary exercise, ought to be preserved and will in truth be its own reward. In severe cases and in acute inflammations of the chest, this rule is of the greatest importance. It is common to meet with patients who cannot speak three words without exciting a fit of coughing and who, notwithstanding, cannot be persuaded that speaking retards their recovery. In like manner in spitting of blood and in the early stage of tubercular consumption, when the breathing cannot be excited without direct mischief, it is often difficult to convince the patient of the necessity of silence. He, perhaps, does not feel pain in attempting to speak and says that "it merely raises a short tickling cough, which is nothing." But if he persists, dearly-bought experience will teach him his error. All violent exercise ought for similar reasons to be refrained from during at least the active stages of cold. Whatever hurries the breathing, whether walking fast, ascending an acclivity, or reading aloud, has the same effect upon the diseased lungs that motion of the bone has upon the inflamed joint. It is well understood among professional men that in speaking, singing, and playing on wind instruments, the lungs are called into play as powerfully as in running or any other species of severe muscular exercise. "From not adverting to this fact," says Dr. Coombe, "a strongly-constituted individual who brought on spitting of blood by bodily labour to which he had not been accustomed, conceived himself perfectly safe and even cautious when he gave up the spade and confined himself to talking a great deal, which he did daily to numerous visitors, in explanation of favourite views then occupying all his thoughts. The consequence was that the prescribed treatment was without effect and a fatal illness was brought on. When the action of the lungs was subsequently explained to him, he saw at once the error into which he had fallen and lamented the ignorance which had led to it, but too late to derive any advantage from his knowledge."

LUNGS, INFLAMMATION OF

See PNEUMONIA.

LUNGS, LOBULES OF

The surface of the lung is divided into a great number of small spaces or divisions. These little divisions are called lobules. Each lobule is like its neighbours, so that if you gain an idea of the structure of one little division, you understand the whole. Suppose you dissect the lung, what do you find? You find that the windpipe branches out into innumerable divisions and imitates a tree of small tubes, which grow finer and finer the farther you pass away from the main divisions of the windpipe. Trace out one of these tubes to its ultimate ramifications and you find it end in a cluster of small cells.

LYMPHADENITIS

In connexion with tubercular disease it is common for the lymphatic glands in various parts of the body to become affected. In rare cases nearly all the lymph glands of the body become involved and often enormously enlarged. More commonly, however, certain parts of the body only are affected, those most frequently attacked being the glands of the neck.

There is a great tendency for the glands so affected to pass on to suppuration, and often considerable disfigurement results. All these cases should be surgically treated at as early a stage as possible, both in order to avoid local disfigurement and to destroy the general infection.

LYMPHATIC GLANDS

The lymphatic glands appear to have no other office than that of receiving and transmitting the lymphatic vessels. They have no excretory ducts. They are very numerous throughout the system, the largest and most familiar to us being situated in the groins, the armpits and along the sides of the neck. In the neck they often become swollen in scrofulous affections and form large tumours—sometimes ulcers. The glands of the armpit and groin are also liable to become diseased.

LYMPHATIC VESSELS

The lymphatic vessels arise from every part of the body and contain a whitish transparent fluid denominated lymph. They form, together with the lacteal vessels, what is called the absorbent system. They are extremely small and delicate and cannot readily be seen with the naked eye. They pass through what are called the lymphatic glands and, in common with the lacteals, terminate in the thoracic duct. They have been likened to a set of greedy little animals, ready to seize and carry off everything that comes in their way. They seem to have no judgment as to what is good and healthy, but absorb poisonous and deleterious substances, as well as the most nutritious. Blood effused under the skin or nails, producing a dark appearance, is removed by these little vessels. Their office appears to be that of general usefulness, ready to take up and carry off any refuse material, dead matter, or unhealthy deposit, in any part of the system.

MADNESS, SYMPTOMS OF

These are to be found in an altered and peculiar appearance of the eyes, protruding and wild ; rapid and successive change of features ; unusual vigour and uncommon agitation of the whole muscular powers ; insusceptibility to extremes of heat and cold and to the influence of contagious diseases ; insensibility of the skin, stomach and bowels and hence obstinate costiveness ; absence of sleep ; high, bounding spirits ; erroneous imagination ; incessant talking, singing, shouting, etc. ; obscene language and gestures ; sometimes excruciating pain, denoted by frequent changes of posture, beating the forehead, breasts, stomach, sides, or belly ; eructations of wind from the stomach of a very peculiar fœtor ; high-coloured urine ; delirium. The skin is dry, harsh and cold, sometimes with partial cold and clammy perspirations ; breath hot and offensive ; hurried respiration. The most common period of attack is between the ages of eighteen and forty. Dr. Forbes Winslow, in his *Obscure Diseases of the Brain and Mind*, points out that "disorder of the functions of the brain, in the early period of its manifestation, may be of so slight and transient a character as to be easily overlooked by the patient, as well as by his physician. An apparently unimportant knitting of the brows, a trifling sensation of numbness in some part of the body, a condition of general or local muscular weakness, a state of *ennui*, mental peevishness, irritability and physical restlessness, an almost inappreciable depression or exaltation of the animal spirits, an impairment and disorder of the sense of sight, loss, aberration, or confusion of memory, defect in, or acute manifestation of, the sense of hearing, an inaptitude for mental work, an inability to concentrate the attention continuously on any subject, a state of sleeplessness, or condition of lethargy, a trivial deviation from the usual mode of talking, such as suddenly pausing in the conversation, as if to regain a lost train of ideas, a slight defect in the articulation, associated with a transposition of words and inability to pronounce certain letters, are all characteristic symptoms, frequently diagnostic of disease having commenced in the brain and yet may be disregarded." Madness very frequently terminates in the opposite form, or melancholy. Chronic incurable derangement, or fatuity embraces a large proportion of its subjects. The distinction between this form of insanity and melancholy may be readily perceived by comparing the symptoms of the one with those of the other. Samuel Taylor Coleridge points out that "madness is not simply a bodily disease. It is the sleep of the spirit, with certain conditions of wakefulness; that is to say, lucid intervals. During this sleep, or recession of the spirit, the lower, or bestial states of life rise up into action and prominence. It is an awful thing to be eternally tempted by the perverted senses."

MADNESS, TREATMENT OF

One of the first things to be done in all cases of insanity, under whatever form it may appear, is to separate the patients from their friends and home, as this separation is invariably favourable to restoration of the mental balance. In fact, insanity cannot be treated at home, and in removal to an asylum or private institution, lies the sufferers' best, if not only chance of regaining reason. The judicious exercise of the faculties conduces much to recovery. This must be done by exciting the patients' attention—by presenting new objects to their contemplation—by giving way, in some measure, to their hallucination. If, by these means, their confidence can be gained, the probability of cure is much increased. The passions, also, must be carefully managed. The proud and rebellious passions and emotions must be tamed and kept in subjection; while the timid and melancholy are to be dissipated by encouragement. It is sometimes proper to substitute a real for an imaginary grievance. Thus, a melancholic is devoured with *ennui* in the midst of the pleasures and enjoyments of life. If we withdraw him from his usual habits and impose upon him real privations, he will then suffer real *ennui*, which will prove a powerful means of cure. Travelling is often very useful, and so is active corporeal exercise. The clothing should be warm and comfortable and the food prevented from being devoured with voracity. In the majority of cases, a plain and regular course of living is essential. Patients accustomed to wine ought not to be wholly debarred from it. When the symptoms of indigestion exist, a suitable diet must be enforced. When exhaustion is apprehended, from a too long continuance of high excitement, the most nutritious food should be given. A principal object in the medical treatment is to procure for the patient sound and refreshing sleep, and the endeavours should be directed towards ensuring it for many nights successively.

MAGNESIA

See MEDICINES, HOME.

MALARIA

See AGUE.

MALNUTRITION

Malnutrition is said to take place when the body is badly nourished or supplied with impure air and food. It is a frequent cause of mortality amongst young children and especially amongst those who are farmed out ; though no doubt increased vigilance on the part of medical officers of health has effected improvement in this respect. The unhealthy state of the children in large towns is mainly due to this cause and may be seen in the stunted and rickety condition which they present. The mischief thus wrought in childhood is bound to render the victim more susceptible to disease than hardier and better-fed children are. For the prevention of mischief the diet should be carefully regulated, and sanitary officers should see that there is a plentiful supply of good water and air and proper housing. All adulteration of milk, bread and other necessaries of life should be severely punished ; the water supply should be copious and wholesome, and in every large town open spaces and parks should exist for the children to play in. As intelligence and education advance, it is probable that cases of malnutrition through ignorance will lessen ; when arising from wilful neglect, the guilty parties are liable to the law; when from poverty or misfortune, the poor-law relief steps in so as to prevent people from suffering at any rate from starvation.

MAMMARY GLAND
See BREASTS.

MASSAGE
or kneading or manipulation of the flesh has been performed with some amount of success in such ailments as paralysis, headache, chronic constipation, dyspepsia, sprains, neurotic affections, St. Vitus's dance, anæmia, writer's cramp, and rheumatism, as an adjunct to medical treatment. It presupposes a knowledge of anatomy and physiology on the part of the operator, and should not be carried out without the express sanction of the doctor, who ought also to recommend the operator. In some cases, it involves stroking of the flesh upwards towards the trunk in the direction of the muscle fibres ; in others the flesh is picked up and kneaded or rolled between the fingers ; in a third set of cases friction is performed with the finger tips ; in a fourth percussion with the back of the hand. An ignorant operator may often do serious harm, either directly by bursting a blood-vessel, rupturing an aneurysm or perforating the stomach, or indirectly by employing it in cases (as heart diseases) for which it is wholly unsuited. When friction is needed to excite circulation of the blood, brisk rubbing up and down with the bare hand or hair glove, all over the surface of the body, will answer. The best time for this is before dressing, in the morning, after the patient's bath. Where there is stiffness, or inaction of the muscles, from any cause, the entire body should be treated by pinching and rubbing the muscles and tendons, done with the whole hand and not the fingers alone ; each joint also should be worked up and down, and backwards and forwards, evenly and without jerks, at the toe, and going upwards—a sort of kneading of the entire body. Cocoa oil or butter is frequently rubbed in at the time. Where there is a restless nervousness or fatigue to be overcome, the rubbing should be in one direction, in long, slow, firm strokes, beginning with the shoulders and arms, then the back, abdomen, thighs, legs and feet, with an equable, monotonous movement, which soothes and induces sleep.

MASTICATION

(Latin, **mastico**, "I chew"). The movements of the masticatory apparatus of the human being are more complex and more varied than those of any other animal, resembling those of both the flesh-eating and grazing species, showing, as does also the comparative anatomy of the teeth, that the human race is adapted to live on a mixed diet. The process of mastication, which is one of very great importance, consists in dividing and comminuting the food by the teeth, reducing it to a state of complete disintegration which is a necessary condition for its insalivation—the mixture of the food with the fluids of the mouth—and subsequently for the action of the digestive fluids of the alimentary canal.

MASTICATION OF FOOD

There is a great deal of popular misconception with regard to the amount of chewing required by flesh-food. Persons with bad, false, or tender teeth often imagine that a vegetable diet is more suited to their imperfect powers of mastication than an animal one, and we often see mothers instructing their children carefully to chew meat and neglecting the same precaution in respect of vegetables. Physiology teaches an opposite caution. It is desirable, indeed, that the jaws should break up muscular fibre, lest it should perchance stick in the gullet and be difficult of penetration by the gastric juice of the stomach ; but in the case of a vegetable aliment more important functions are called into play. It is still more indispensable that the food should be broken up, for it has to be immediately acted upon ; and it is indispensable, also, that it should be detained in the mouth till enough saliva has been secreted to convert its starch into glucose. Complete mastication, therefore, important for both, is still more important for vegetable than for animal food ; and the leisurely performance of the operation cannot be prudently omitted by a mixed eater. We may also reflect that while lions and tigers and wild dogs bolt their food, cows not only spend the greater part of the day over their nibbled meals, but give them a second chewing when in repose. William Ewart Gladstone used to say that every mouthful required to be chewed thirty times.

MEALS IN SICK ROOM

With reference to the proper manner of serving meals in a sick room, they should be served upon a tray, covered with a fresh napkin. "Have cups and spoons," says a writer of practical sagacity, "shiningly clean. Be careful not to slop the tea into the saucer and not to bring too much of anything. Be careful that all necessary things are on the tray when it is brought to the patient ; if you are obliged to leave it a moment to go for something else, never set it on the bed, but on the table. Never taste a patient's food in his presence. Take the tray out of the room as soon as the meal is eaten. You may keep beef-tea which is needed for the next dose in the nearest cool place, carefully covered. The ledge outside the window, in the shade, will answer if there is no better place. Take it away from the bed, even if you have to give it again in ten minutes. Medicines, food, or stimulants, should never be where the patient can see or smell them. Never leave food standing on the table under the idea that perhaps the patient will 'take a little by and by.' When needed, let it be brought promptly, hot (unless there is diarrhœa), in the right quantity and without too much stir or parade, or rattling or jingling of cups and spoons."

MEASLES

This is a disease of a highly infectious character, but constitutions which have once been under its influence are not as a rule liable to second attacks. It is, in general, a disease of childhood, but no age is exempt from it.

MEASLES, SYMPTOMS OF

The period of incubation—in other words, the time that elapses between exposure to the infection and the first appearance of the febrile symptoms which precede the eruption—is, in most cases, about a fortnight. Then comes a slight chilliness, followed by fever, with sneezing and watery eyes, and then cough and perhaps a sensation of roughness and slight soreness of the throat. As all these, however, are also the symptoms of a severe cold, we can at the beginning be led to suspect measles only by the known presence of the specific contagion and the known liability of the patient to receive it. But the fever is more permanent than in an ordinary cold and increases in intensity, except in very mild cases, and on the third or fourth day—though sometimes not till the fifth—an eruption appears in patches. It is two or three days in coming out, beginning on the face and neck, and gradually working its way downwards. This rash fades in the order in which it occurs, the red colour giving way to a somewhat yellowish tint, and the cuticle crumbling away in a fine bran-like powder—a process often attended with considerable itching. By the eighth or ninth day of the disease the eruption on the face has nearly disappeared, although traces of it often remain for four or five days longer. In its early stage measles runs the risk of being mistaken for small-pox. There are two important points in which it differs. Firstly, the fever does not cease or even abate when the eruption makes its appearance, but sometimes increases in intensity. Secondly, the disease is not more severe or more dangerous because the eruption is plentiful or early. The character of the eruption, after the first day, will serve to remove all doubt regarding these two diseases ; and the prevalence of either measles or small-pox in the neighbourhood will be of material service in arriving at a conclusion. Measles is distinguished from scarlet fever or scarlatina by such peculiarities as to render it difficult, even for a tyro, to mistake the one for the other. Firstly, measles at the outset exhibits catarrhal symptoms which do not occur in scarlet fever, at any rate, previous to the eruption. Secondly, there is an absence in measles of the throat affection, which always accompanies well-marked cases of scarlet fever. Thirdly, the character of the rash in both diseases is different ; in measles it presents somewhat the tint of the raspberry, in scarlet fever that of a boiled lobster ; in measles it appears in concentric patches, whilst in scarlet fever it is universally diffused ; in measles it usually appears on the fourth day and in scarlet fever on the second day of the disease. It is a curious fact that measles and scarlet fever were not properly distinguished from each other till about the beginning of the eighteenth century, a circumstance which has led some to suppose that scarlet fever is entirely a disease of modern times. The eruption in measles may be regarded as a kind of disease by means of which the animal economy endeavours to relieve itself from some internal morbid irritation. In general, there is a considerable tendency to inflammation throughout the whole course of the disease, the parts most subject to it being those most apt to be inflamed in common cold—namely, the eyes, nose, throat and lungs. The inflammation of the first three is ordinarily of little consequence ; it seldom becomes very troublesome and declines with the other symptoms. The inflammation of the lungs may come on at any stage, but is most frequent after the eruption has subsided.

MEASLES, TREATMENT OF

In very mild cases, all that is required is to keep the patient on a low diet, attend to the state of the bowels, and protect him from cold, which is best done by keeping him in bed in the ordinary warmth to which he has been used in health. The idea is generally prevalent that those suffering from measles cannot be kept too hot and much mischief is often caused in this way. One should avoid cold, it is true, but free ventilation, combined with a moderate temperature, is always best. A moist skin on the appearance of the eruption ; early and free expectoration ; moderate looseness and mild fever are to be regarded as favourable symptoms. It is a great point, in mild cases, not to do much, but to leave the principal part of the work to the natural efforts of the system, " aided," says a doctor of repute, " by the ordinary doses of sesqui-carbonate of ammonia every four hours. It should always be given, even in the mildest cases. Give three grains in water, every four hours, to a child of eight years old. The best medicine in measles is sesqui-carbonate of ammonia and under its use I question if we ever see great difficulty of breathing supervene, or any other symptoms of inflammation of the lungs." Animal food and fermented liquors should be avoided. All the drink should be tepid. In severer cases, the patient should drink freely of diluents and especially of demulcent drinks, barley-water for example ; the diet should be composed of milk and farinaceous matters ; cooling fruits and such like may be allowed. The bowels should be attended to, but not purged. In the event of the eruption being tardy of making its appearance, or coming out small or insufficiently, or after having come out, suddenly disappearing before the time of its regular decline, danger is to be feared. The patient must be placed in a warm bath—temperature 98° F.—and kept there from ten to twenty minutes, according to age. Besides this—to follow one method of treatment—to a child of five years old, half a drachm or half a teaspoonful of spirit of mindererus should be given in a little sweetened water every two or three hours and warm drinks freely administered at the same time.

" A very pernicious practice," remarks Dr. Spencer Thomson, " prevails, especially in the country, among the poor, of giving children stimulants ' to bring out the eruption,' and also in the course of the disease ; in Scotland, whisky is given, in England, cowslip wine is the most generally employed stimulant. It is perhaps scarcely necessary to add that none but the most ignorant and prejudiced could be guilty of so dangerous a practice. In England there seems to be a popular prejudice in favour of the virtues of the cowslip in measles, and, when the wine is not used, it is very common to find the infusion, or tea of the 'cowslip pips,' or 'flowers,' given ; this, of course, is perfectly innocent and may be permitted." Should the feverish symptoms be considerable, from four to six grains of ipecacuanha powder and half a drachm of carbonate of potash, may be made into a mixture with three ounces of water, and a dessertspoonful of this given to a child of five years of age every four or five hours ; in milder cases, ten to fifteen drops of ipecacuanha wine are to be given in the same way. For the relief of the cough opium should never be given. It seldom gives the required relief and is certain always to increase the feverish symptoms. Occasionally the progress of the disease is irregular and the symptoms malignant, the fever terminating early in typhus. "In such instances," says Dr. Graham, "the best medicines are ammonia and wine. If the oppression of the chest be considerable, blisters should be applied. The tartar emetic ointment, rubbed on the chest, may be sometimes still more beneficial, or a mustard poultice, quickened with oil of turpentine and applied to the chest, may prove of the greater service when there are symptoms denoting inflammation within the chest and the debility at the same time is too great to admit of bleeding."

MEASLES, WARNING AS TO

The chief danger, in ordinary measles, arises from the affection of the chest, especially in the case of very young children. Many of these are carried off in this way, especially if the epidemic should occur during the cold winds of spring, and if the children, as too often happens among the poor, are insufficiently attended to. When measles invades a community in its malignant or putrid form, it proves a fearfully fatal malady, cutting off numbers of children, and that in the face of the most skilful treatment. In persons of advanced years, measles may take a severe and even dangerous form by its power of arousing and developing into full and fatal action germs of disease which may have been slumbering in the system for years.

MEASLES, WEAKNESS AFTER

The principal care during convalescence is to avoid exposure to cold, as the disease leaves a susceptibility to inflammatory chest complaints for some time. In those of weak constitution many unpleasant effects may follow measles, such as severe inflammation of the eyes, swelling of the glands, consumption of the bowels, pain in the ears, deafness. The following valuable and interesting observations of Dr. Armstrong are deserving of notice : "It is a remarkable fact," he says, "that when any cutaneous affections arise after measles, the internal organs generally remain free from disease ; and even when some internal disorder has existed, I have not unfrequently seen it disappear on the occurrence of some spontaneous eruption of the skin. Indeed, there are many cases of this nature already on record. At all times we should therefore be most wary in meddling with vesicles, pustules, boils and the like, when they come out after the measles ; for although they may be temporary blemishes on the surface, they are often the occasion of saving the vital walls within."

MEDICINE, ADMINISTERING OF, TO CHILDREN

No child is naturally desirous of

taking medicine and a child soon discovers the difference between drugs and sweetmeats, but parents sometimes fail to see this and much mischief is often done by attempting to deceive children in regard to the true nature of what is being given to them. Dr. West has said in connexion with this matter : "I look upon deceit as one of the most serious causes of difficulty met with in administering medicines to children. On the first occasion we may succeed by telling a child that the medicine offered to him tastes good, when in truth it is detestable. But we shall fail the second time and shall raise up a thousand difficulties for the future. If the medicine is absolutely necessary and the child too young to be reasoned with, he must be compelled to take it, by a kindly display of authority, and his passing sense of injury will soon be forgotten. If he is old enough, tell him that the medicine has been ordered for the purpose of doing him good and, by making use of mild, but at the same time firm words, you will succeed in getting him to take it, especially if, after all else fails, you tell him he is a good child, that it is a pleasure to take care of him and that you will not fail to tell the doctor of his good behaviour. This truthfulness should be thoroughgoing ; it should even prevent our saying to a child, 'You will soon be cured,' if the contrary really seems probable. When a child is convinced that we are telling him the truth, he feels confidence, we save ourselves much annoyance and procure the poor little patient great consolation. Leeches had been prescribed for a little child of three years. The leecher, a worthy old man, said, in order to encourage him, 'My dear little fellow, it is nothing.' The child turned to his mother and said, 'Mamma, is that true ?' She hastened to answer no, but that she hoped that, for her sake, he would submit. The child became silent and uttered not a cry nor a complaint during the operation." It is by no means an unfamiliar experience of the doctors to see a parent coax a badly brought-up child to take some medicine, it may be a powder or something else, and when all efforts have been in vain and promises and threats proved useless, to see her mix it up with such a combination of different stuffs as are likely to do more harm to the child's stomach than any good the medicine is likely to accomplish in that form. It need scarcely be said that when children have been brought up in this way, the work of the doctor is naturally increased and can only be done in a very unsatisfactory manner. Suppose, for instance, a child suffering from some chest affection. At the moment the doctor makes his appearance the child begins to cry or bursts out into a rage, refusing to be examined. In such circumstances it is not possible to obtain a proper knowledge of the child's true state, for by the fit of crying or anger the real condition of things has become altered. The breathing is rendered more hurried, the heart beats much more rapidly, the face is flushed, and altogether the child's condition is obscured. Parents have it in their power to prevent these unpleasant occurrences. Thus, if a mother would occasionally put her child through something of the routine of a medical examination, any actual examination by the doctor at another time would not only be deprived of most of its terror but be accepted almost as a matter of course. No parent need be told how important it is in a case of suspected diphtheria for the doctor to obtain a satisfactory view of the throat; but frequently the constant wriggling and tossing about of the head render this impossible, or at least afford only a most cursory glance. Much might be done by a mother sometimes introducing her finger into the child's mouth and looking herself at its throat to remove the alarm to which such an operation gives rise when it comes to be done for the first time by the doctor. In this way it is in her power to be of real service to the doctor and to aid his work very considerably. Few things tend more to the injury of children than drenching them with drugs. Medicine is sometimes requisite for them, but its indiscriminate administration on every trifling deviation from the course of health when some variation of diet and regimen would answer every purpose is a pernicious habit.

MEDICINES, HOME

The following is a list of those drugs which are in most frequent demand in cases of emergency and which it would be well for everyone to have in the house, more especially if they are living in the country :—

Aromatic Spirit of Ammonia.—This, which is commonly called sal volatile, is a very useful stimulant in fainting, hysteria, or flatulent colic. It may be given to adults in doses of a teaspoonful in a wineglassful of water and may be repeated at frequent intervals. A drop or two given to children in a little water is also useful in pain due to flatulence.

Castor Oil.—A bottle of the finest cold-drawn castor oil. This acts as a gentle but efficient purgative and may be given in doses of a teaspoonful to children and a tablespoonful to adults.

Dill Water.—This is frequently given to children during teething, when they appear to be griped from the presence of wind in the stomach and bowels. It would be better to attack the cause, as wind is merely the result of something more serious. A little magnesia may be given with advantage along with the dill water, which may be given in doses of a teaspoonful or more to a child a year old.

Epsom Salts.—The dose for an adult is half an ounce. They should be taken the first thing in the morning and warm drinks freely administered afterwards. They form, when so taken, an excellent saline purgative and, by stimulating the orifice of the bile duct, cause an increased flow of bile and so relieve the system.

Ipecacuanha Wine.—In coughs of a bronchitic nature it may be administered in doses of from five to ten drops to children and ten to twenty or more to adults. For young infants a drop will be sufficient at a time. When it is wanted to act as an emetic, it must be given in doses of half a teaspoonful to a teaspoonful at a time. In croup an emetic of ipecacuanha wine is often of great service.

Laudanum.—Great care must be exercised in the use of this drug, as the laudanum habit may be acquired from its too frequent employment for the relief of pain. For an adult about twenty or twenty-five drops may be given for a dose. This drug should on no account be made use of for the relief of pain in children without medical advice, as much harm may result in consequence. Children are very susceptible to the action of laudanum and none but the doctor can decide the utility of employing it in any case.

Lime Water.—This is excellent to give children along with their milk when there is any tendency to acidity, or where the bowels are relaxed to a greater extent than natural. One tablespoonful should be mixed with three tablespoonfuls of milk.

Magnesia.—This may be kept either in bulk or in powders, containing from twenty to thirty grains apiece. In acidity of the stomach magnesia is one of the best medicines that can be given and is very certain in counteracting its influence. It may be administered in doses of twenty to thirty grains to adults and to those under ten years, from five to twelve grains may be given.

Rhubarb.—A small quantity of the finest Turkey rhubarb should be kept in powders of from ten to fifteen grains each, one of which, given with the same quantity of magnesia, will act as a mild purgative in the case of an adult. It is useful in dyspepsia.

Spirit of Mindererus—To promote sweating in cases of cold, or in slight febrile affections, this is a very useful remedy and may be given in doses of a tablespoonful to adults, or a teaspoonful to children between six and twelve. It is generally combined with a few drops of sweet spirit of nitre and some camphor water.

Sweet Spirit of Nitre is a valuable refrigerant in fever and acts as a diuretic as well. It should be given in small doses of five or ten drops largely diluted.

Tincture of the Perchloride of Iron.—A small quantity of this should be kept in the house to arrest bleeding from leech-bites, etc., when other means have failed to do so.

MEDICINES, WHAT TO BE CAREFUL ABOUT IN GIVING

Medicines should be given as near

Weights, Measures, etc.

Apothecaries' Weight.

20 grains (*gr.*) make	. . . .	1 scruple—℈
3 scruples ,,	. . . .	1 drachm—ʒ =grs. 60.
8 drachms ,,	. . . .	1 ounce—℥ =grs. 480.
12 ounces ,,	. . . .	1 pound—℔.—grs. 5,760.

Apothecaries' Measure.

60 minims make	. . . .	1 fluid drachm	=*f*ʒ.
8 fluid drachms ,,	. . . .	1 fluid ounce	=*f*℥.
16 fluid ounces ,,	. . . .	1 pint	= O.
8 pints ,,	. . . .	1 gallon	=C.

Approximate Measures.

One minim varies from	. . . .	one to two drops.
1 fluid drachm equals (about)	. . . . .	1 teaspoonful.
2 fluid drachms ,, ,,	. . . . . .	1 dessertspoonful.
½ fluid ounce ,, ,,	. . . . . .	1 tablespoonful.
2 fluid ounces ,, ,,	. . . . . .	1 wineglass.
4 fluid ounces ,, ,,	. . . . . .	1 teacup.

Table for apportioning Doses.

21 years of age	. . . .	full dose.
14 ,,	. . . .	⅔ ,,
12 ,,	. . . .	½ ,,
6 ,,	. . . .	⅓ ,,
1 year of age	. . . .	1-12th.
3 months of age	. . . .	1-20th.

the exact time as possible and in the exact quantity ordered. Never trust to the eye; measure in a graduated glass, or let it drop with care. See that the bottles are labelled. A trustworthy nurse will always look at the label on the bottle before taking the cork out, whether she thinks she is right or not. The habit of caution should be strong with a good nurse. In pouring out all medicines, hold the labelled side uppermost, so that no drops shall soil it. Before measuring the dose, and again after giving it, examine the label with care,—take out the cork and smell the medicine. Drugs should be kept in bottles properly stoppered and under lock and key. If this latter precaution were habitually attended to, many unfortunate accidents would be avoided. Unless care is taken to see that the bottles are properly closed and the entrance of air excluded, the medicinal power of the various articles may be impaired by evaporation; or, what is worse, they may become concentrated, as in the case of laudanum and thus rendered dangerous.

MEDICINAL DRAUGHTS

See Draughts, Medicinal.

MEDULLA OBLONGATA

(Latin, **medulla,** "marrow"; **oblongatus,** "lengthened").

The medulla oblongata, which is in connexion with the cerebellum, is associated with the processes of respiration, mastication, swallowing, etc., on the due performance of which the preservation of life depends.

MEMBRANA TYMPANI

See Drum-head.

MEMBRANES

(Latin, **membrana,** "skin," "film").

Membranes are thin expanded substances which line the cavities of the body and envelop all the organs. They are of different kinds, and vary in structure and appearance as they do in function. The various kinds of membranes are described, each under its own heading.—*See* Cellular Membrane, Mucous Membrane, and Serous Membrane.

MENINGITIS, CEREBRAL

See Cerebral Meningitis

MENINGITIS IN CHILDREN

(Greek, **me′ninx,** "membrane").

This is often closely connected with a scrofulous constitution and occurs in children from a few days old to twelve or thirteen years of age. Whatever tends to aggravate the scrofulous condition tends to produce the disease, which is nearly always fatal. Bad air, insufficient or unnourishing food, exposure to cold, uncleanly habits, want of sufficient clothing, etc., all increase the unhealthy tendencies. The exciting cause of the attack may be congestion of the brain, occurring in eruptive fevers, such as measles and scarlatina, or in long and painful teething; violent and heating exercise; blows and falls, even if the head is not struck; shocks to the nervous system from sharp pain, or a violent fit of anger or fright, etc. The possibility of saving the child depends upon recognizing at once that something is wrong, and sending promptly for the doctor.

MENINGITIS IN CHILDREN, SYMPTOMS OF

Loss of appetite and spirits,

constipation, unnatural appearance of the discharges from the bowels—they are pale and slimy and offensive,—gradual wasting of the body, not noticed in the face, drowsiness, squinting of one or both eyes, not noticed before, vomiting, unsteady gait, enlarged and glassy look of the pupils. The sleep is disturbed by sudden cries, clinching of the fist, the thumb is turned to the palm of the hand, the eyelids are half closed in sleep, the teeth are ground, the head is rolled to and fro on the pillow and the child moans. The disease may come on gradually with some or all of these symptoms ; or it may suddenly appear with sharp pains in the head and fever ; or with convulsions and screams and a vacant look before the spasms are over. This last way of showing itself is generally during the decline of scarlet fever, or in whooping-cough, or painful teething.

MENINGITIS IN CHILDREN, TREATMENT OF

The child must be kept absolutely quiet in a dark room ; spoken to in the gentlest way ; never rocked in cradle or chair ; never walked about the room, or moved backwards and forwards on the knees and must be kept with its head high on the pillow. Ice-bags are sometimes thought bad as applied to the heads of very young children ; in which case keep soft linen rags soaked in ice-water ; wring out and apply a fresh one before the last has had time to get warm. The child's food need be nothing but milk and gruel ; and there must be only the gentlest lifting when necessary and always on the pillow, the head being kept high at the time. Several times in the course of the disease the symptoms may seem to pass away and the child to improve. The nurse, however, must not relax her attention, for there is no safety for the child until, for instance, the pupils contract quickly under a strong light. About one child in four recovers from the disease and the recoveries are among the children whose first symptoms of brain disorder are promptly attended to.

MENISCUS GLASS

See SPECTACLES.

MENSTRUATION

(Latin, **menstruum,** "monthly service" ; from **mensis,** "a month").

The period of puberty in the girl is marked by the appearance of a discharge of blood at the external organs of generation. This discharge comes from the interior of the womb, and recurs in health with great regularity every twenty-eight days, or once a month, for a period of thirty years. The cause of this discharge is the ripening of what is known as a Graafian follicle, and the escape of an ovum, or egg, into the cavity of the womb. The bodies concerned in the maturation, or ripening, of these follicles are the ovaries, which are two in number, of an almond shape, and situated one on each side of the womb, with which they are connected by means of two tubes about four inches long. Down these tubes the discharged ovum travels till it reaches the interior of the womb, from which, unless impregnation occurs, it is washed away in the monthly discharge. The colour of the menstrual blood is at first dark, but becomes brighter as the period advances. It has this peculiarity, as distinguishing it from ordinary blood, that it does not coagulate on exposure to the air. The reason of this is, that in its passage from the womb, the blood becomes mixed with certain secretions which tend to prevent this from occurring. The amount of blood lost at each monthly period varies, but usually it averages from three to four ounces. If the quantity becomes excessive, as it sometimes does, the health of the woman suffers. The flow is not, as a rule, established at once ; sometimes several months elapse between the first and second menstrual period ; but when a few months are over, it recurs with great regularity, sometimes coming on even to the hour. The time of life when menstruation begins varies, but may be said to occur in temperate climates between the fourteenth and sixteenth year. Cases, however, are on record in which girls a few years or even a few months old have had a bloody discharge, from the external organs of generation, which continued to recur at regular intervals afterwards. These, as may be supposed, are cases of extreme rarity ; but in the British Isles many cases are met with in which a girl has begun to menstruate when she was ten or twelve years old, and others in which the monthly discharge has been delayed till the twentieth year, or even longer. There are several circumstances which operate powerfully in accelerating or retarding the menstrual flow. Of these the influence of climate is most marked. In India and other countries where the heat is great, girls begin to menstruate earlier than they do in more temperate climates. They arrive at perfection sooner, but their beauty is more short-lived and they soon become aged, while those who inhabit more northerly climates and are exposed to intense cold are longer in coming to maturity, but they retain the characteristics of womanhood longer and their beauty to a comparatively old age. But, besides the influence which climate exerts, there are other circumstances at work which tend to hasten the occurrence of puberty in the girl. Thus anything which tends to produce effeminacy—a lazy, listless life ; undue mental excitement, caused by the reading of sensational novels, by conversation or the like ; late hours, irregular habits of sleep ; highly seasoned articles of diet and stimulants, have all a tendency to accelerate the occurrence of menstruation. Among the upper classes of society, where most or all of these circumstances are at work, menstruation occurs earlier than it does in the lower classes, where muscular exercise is more frequently taken, where the articles of food are plainer, where the mental excitement is not so great and where the whole surroundings are more conducive to the development of a healthier and hardier frame. In towns where all the above influences are at work, girls menstruate earlier than they do in the country. It has been said that the monthly periods when once established continue to recur at regular intervals in a woman who is healthy for about thirty years, during which time she is capable of conceiving. When a woman is said to be regular in regard to her courses, it is not merely meant that she is regular as to time, but she is regular as to quantity and quality as well. Menstruation ceases during pregnancy and generally during the period of suckling as well. Diseases which exhaust the strength and impair the vital energies of the body generally lead to a stoppage of the monthly discharge. This is frequently seen in the case of consumption and other diseases of a debilitating nature.

MENSTRUATION, BEGINNING OF

The appearance of menstruation is ushered in by certain well-marked symptoms, the significance of which should not be overlooked. About this time languor and general unfitness for exertion are complained of ; there are dull, aching pains in the region of the pelvis ; a feeling of dragging and weight about the small of the back is also complained of. There is a dark ring under the eyes. These pass away as the menstrual function becomes established. The change which menstruation works upon the girl is great. Her frame becomes rounder and fuller, the hips broaden, fat becomes deposited in various parts of the body, the breasts enlarge and in her manner she becomes more retiring. It seems as if a great mental change had come over the girl and there had begun to dawn upon her mind the consciousness of that important mission she was destined to fulfil. From this time her demeanour is altered and around her person there gathers a sacredness hitherto unknown. Her bearing also becomes more dignified ; she exchanges the pursuits of girlhood in which she has so long found pleasure for those of maturer years and consciousness of the position she occupies now fills her mind.

About the first appearance of this discharge, the constitution undergoes a very considerable change, generally, indeed, for the better, though sometimes for the worse. The greatest care is then necessary, as the future health and happiness of the female depend, in a great measure, upon her conduct at that period. She should be careful to take exercise daily in the open air, to partake of a wholesome, nutritious diet and not to indulge in tight clothes. The exercise should be free and active, which will be found to promote digestion, to enliven the spirits and to ensure a proper discharge. It is worthy of the attention of young women that one seldom meets, at this period, with complaints from obstruction amongst the more active and more industrious part of the sex ; whereas the indolent, inactive and luxurious are seldom free from them. After the menses have begun to flow, great care should be taken to avoid everything that may tend to obstruct them. Women ought to be exceedingly cautious as to what they eat and drink at the time they are out of order. Everything that is cold, or apt to sour on the stomach, and all things which are found by experience to disagree ought to be avoided. Exposure to cold is extremely hurtful at this period. More females may acquire disease from cold caught while they are in this situation than from all other causes. A degree of cold that will not in the least hurt them at another time will, at this period, often be sufficient entirely to ruin their health and constitution. It is not meant that they should then confine themselves wholly to the house and warm rooms, but that imprudent exposure should be guarded against and the clothing be somewhat warmer than usual. We have heard of a girl who was suddenly seized with mental derangement after the improper use of cold water at this particular time.

MENSTRUATION, CESSATION OF

The final cessation of the menstrual discharge, like that of its beginning, is a critical period with all women and, therefore, it is important to discuss the treatment necessary at that time. The suppression of this discharge is a distinct trouble, which is treated of under this head on the next page. It seldom ceases all at once, but, for some time before its stoppage, becomes somewhat irregular, both as to the periods and the quantity. The time of this final cessation is always a critical one, because the constitution then undergoes a considerable change and there is often a strong tendency to the formation of obstinate and painful chronic complaints. The grand object of treatment at this period should be to quiet irregular local irritation, whenever necessary, by gentle laxatives and moderate opiates or anodynes and to prevent any incidental stimulus or painful mental emotion. The diet should be nutritious, but plain, the exercise moderate and costiveness carefully prevented by attention to diet and by lenient warm aperients. When the discharge happens to disappear suddenly in women of a full, plethoric habit, the diet should be more spare than usual, regular exercise be indulged in, and, every other day, an opening draught should be taken. If ulcers break out in the legs, or any other part of the body, at this period, they ought to be treated by rest and antiseptic ointment.

MENSTRUATION, PAINFUL

Sometimes menstruation recurs every month, with little or no irregularity in this respect, but it is accompanied with great local pain, which is occasionally very severe and forcing, especially about the loins, hips and region of the womb. The quantity thrown forth may or may not be too small; but what chiefly demands attention is the great pain accompanying the flow. This pain is owing either to deranged state of the general health, or to spasmodic constriction of the extreme vessels of the womb. The former is, in our opinion, the more frequent cause. And one of the most efficacious plans of treatment is to administer from thirty to forty, or even fifty, drops of the volatile tincture of guaiacum, on sugar, or in milk and water, three times a day; with an aperient pill every other night, so that the bowels may be kept regular, without being purged. At the same time, the patient ought to take much exercise daily in the open air, either on horseback or on foot; to be attentive to the rules of diet and to mingle with cheerful society. A warm bath at 96° F. every other morning will likewise be advisable and change of air and scene will much conduce to recovery.

MENSTRUATION, SUPPRESSION OF

Chlorosis is a complaint of young girls in which the monthly discharge is either absent altogether, or occurs irregularly and in small quantity; and suppression of the menses, which signifies an interruption to the discharge, may occur at any time of life after it has become habitual. It may, therefore, be remarked in women of any age up to forty-five or fifty. Of course the chief symptom is the disappearance of the usual monthly discharge, with which various strange and unusual feelings are associated, differing in different individuals; such as a feverish heat and dryness of the skin, flushing of the face, headache, pains in the loins and back, costiveness, difficulty of breathing, palpitation of the heart and sometimes bleeding from the nose, stomach, or lungs. The most frequent causes of this suppression are great anxiety of mind; suddenly suppressed perspiration from cold, especially if occurring while the discharge was flowing; sudden alarm or terror; protracted fever; scanty and poor living.

MENSTRUATION, SUPPRESSION OF, TREATMENT OF

The principal indications of treatment are, to excite the action of the vessels of the womb and increase the tone of the system in general when weak or enfeebled, or to allay irritation in it when the complaint occurs in a woman of plethoric habit. When the suppression is associated with chlorosis the treatment should be directed to that disorder.

MERCURIAL POISONING

The occupation of those who are forced to inhale mercury is one of the very worst. Both mercury and arsenic are driven off by heat in the process of roasting certain ores. Mercury seems to be very dangerous to the health, causing sore mouth, loss of the teeth, general debility, or "cachexia," acute pains, sleeplessness, spasms and tremor, and paralysis of the muscles and intellectual feebleness, besides some symptoms resembling those of syphilis, eruptions, swellings over the shin-bone and glandular enlargement, with deep ulcers of the mouth and nose.

MIDDLE EAR

The middle ear, or drum proper —the tympanum—lies, as its name would indicate, between the external ear and the internal ear, or labyrinth. The middle ear is an air cavity, and hence a characteristic of warm-blooded animals, or of those who live on land. It comprises the Eustachian tube, which connects it with the upper part of the throat and the mastoid portion of the temporal bone. The middle ear contains the smallest bones of the human body, the so-called auditory ossicles, namely, the hammer, the anvil and the stirrup, thus named simply from their resemblance to these implements. Through this important cavity, the middle ear, pass two nerves, one the facial, on its way to the face, and the other (really a branch of the facial), the so-called chord of the drum (*chorda tympani*), on its way to the tongue. The middle ear is the seat of most of the diseases of the organ of hearing. Of its various parts the drum cavity is the most delicate and complicated in structure and most liable to disease.

MIDRIFF

See DIAPHRAGM.

MIGRAINE

Migraine or sick headache is a paroxysmal disease to which certain persons are peculiarly liable. It attacks men as well as women, though the latter much more frequently. Though it appears to be primarily a nervous affection the attacks seem often to be brought about by digestive disturbance or by mental fatigue. The patient can usually tell when an attack is coming on. Various disturbances of vision are frequent at this stage, mental confusion and depression of spirits are also common premonitory symptoms. The headache usually commences at one spot, frequently on the temple or in the eyeball. It gradually spreads till the whole head is involved. A sensation of nausea with or without vomiting is frequent. There is great general prostration. The attack may last for a few hours, though severe cases frequently extend over three or four days. Perfect rest in bed, combined with quietness and darkness, is the first necessity. A smart purge may be taken, and all food should be abstained from, though water or soda-water may be freely drunk. In the way of preventive treatment attention should be paid to the general health. Regular active outdoor exercise should be taken, and the bowels should be kept well regulated. The diet should be light and nourishing, consisting largely of milk, eggs, fruit, vegetables and fish. Tea, alcohol, cake and pastry should be entirely avoided. At the commencement of the attack five-grain tablets of citrate of caffeine or phenacetin are often helpful.

MILIARIA

Miliaria, or miliary fever, is an eruption of very small vesicles over any or every part of the body, occurring during the process of other diseases, when attended with profuse perspiration ; as also in women during their confinement, if, from improper diet, superabundance of clothing, or accidental indisposition, they are brought into profuse perspiration. The only treatment required is dusting with protective powder, cooling ointment, cool air, moderate clothing and light diet.

MILK

As this is the natural food of the young, it may be regarded as a model article of nourishment. It furnishes in due proportion all the nutriment required by the growing immature animal. Cow's milk is nearly opaque under ordinary conditions of light ; it possesses a straw-yellow cover, which becomes more marked when the animal has plenty of green food. Milk has a soft, slightly sweet, taste ; it has also a faint animal odour when warm and fresh. When milk stands for a time, the first change which takes place is the rising of the cream, owing to the lower specific gravity of the globules of milk-fat, which at first are uniformly scattered throughout the milk. These minute globules are the chief cause of the white opacity of milk ; but there are many still more minute globules of casein, the chief nitrogenous nutrient of milk.

Milk has sometimes been known to spread disease, either through its direct contamination with the poison of disease during the milking of the cows, or through the water used in rinsing milk-cans, or in diluting the milk, or in consequence of the insanitary condition of the dairy. The milk itself is sometimes unwholesome, owing to the unhealthy condition of the cow from which it has been taken. By keeping, milk turns sour. This takes place especially in hot weather and the change first affects milk which has not been kept in clean vessels and in pure air. The souring of milk, however brought about, is marked by the presence of lactic acid, which is formed from the peculiar sugar of milk known as

MEAN COMPOSITION OF THE MILK OF WOMAN AND VARIOUS ANIMALS.

	Woman	Cow	Goat	Sheep	Ass	Mare
Casein (cheesy matter and insoluble salts) .	3·35	4·55	4·50	8·00	1·70	1·62
Fatty matter	3·34	3·70	4·10	5·50	1·40	0·30
Sugar of milk and soluble salts	3·77	5·35	5·80	4·50	6·40	8·75
Water	89·54	86·40	85·60	82·00	90·50	89·33
	100·00	100·00	100·00	100·00	100·00	100·00

lactose. It may be retarded by the addition of a little carbonate of soda, or by a little boracic acid.

MILK, CONDENSED

Condensed milk is usually milk which has been condensed by evaporation to about one-third of its original bulk. By dilution therefore with two parts of water the mixture becomes like cow's milk. The composition of condensed milk is very variable, for different brands are prepared from skim milk, whole milk, and milk enriched with cream. Good condensed milk is often of great value when travelling, or when ordinary milk of good quality is difficult to obtain, but except in rare instances it should not be used for the feeding of infants. Children so fed are apt to become anæmic, fat, lethargic, and more or less rickety.

MILK, CONSTITUENTS OF

"The chief constituents of milk," says Professor Church, "whether cow's milk, human milk, goat's milk, ass's milk, or the secretion of other mammals, are casein, lactose, or sugar of milk, milk-fat and phosphates. The nature and variations in composition of cow's milk are the most important part of the chemical study of this subject. Cow's milk, from a herd of healthy animals, properly fed, presents a remarkable uniformity of composition. But the total amount of nutrients in it will vary within certain rather narrow limits with the following circumstances. Morning milk will often be poorer in total solids than evening milk; much watery food, as brewer's grains, etc., will impoverish the milk; a small daily supply of oil-cake will add about 1 per cent. to the total solids of milk; milk from cows pastured upon poor and over-stocked land will be poor in quality and reduced in quantity; milk drawn last from the udder—the 'strippings'—will be richest, especially in cream and consequently in milk-fat or butter. The following may be taken as an average composition of cow's milk:—

	In 100 parts.	In 1 pint	
		oz.	gr.
Water	86·3	17	330
Casein	4·1	0	370
Milk-fat	3·7	0	333
Lactose or milk sugar	5·1	1	22
Mineral matter	0·8	0	72

"Thus the total solids of milk amount to 13·7 per cent.; the solids other than fat, being 10 per cent. It is very rare to find genuine and healthy milk showing a percentage lower than 9 of solids, not fat, but some instances have been recorded where these constituents were found to be as low as 8¼ per cent.; but in these cases the food of the cows must have been deficient in solid nutrients or very watery. The ratio of flesh-formers to heat-givers, reckoned as starch, in average cow's milk is as 1 to 3⅓. One pint of cow's milk weighs about 1 lb. 4¾ oz.; if one pound of milk be digested and oxidized in the body, it is capable of yielding a force equal to 390 tons raised 1 foot high. The greatest amount of external work which it could enable a man to perform is 78 tons raised 1 foot high. One pound of milk can produce at the most about ¾ oz. of the dry nitrogenous substance of muscle or flesh."

MILK FEVER

In this disorder the breasts become gradually distended with milk. The time that transpires before the secretion of milk is thoroughly established depends both on the constitution of the patient and on the character of her previous labour. The first secretion of the milk is accompanied by more or less inflammatory fever.

MILK FEVER, TREATMENT OF

The bowels should be freely opened and cooling drinks should be given with a very spare diet. The utmost tranquillity must be observed, the apartment kept cool and moderately lighted and the head be somewhat elevated and bathed with cold or iced water. In general no more is necessary and the febrile state will be relieved by the flow of milk from the breasts.

MILK, HOW TO DRY UP

When a woman has been able to maintain her child at the breast for the usual period—that is to say, for about nine months—she will generally find little difficulty with her breasts when the time for weaning has arrived. Should it happen, however, that the breasts become swollen, hard and distended on the child being weaned, recourse must be had to measures calculated to remove these symptoms. For the relief of the tension a little milk may be withdrawn from the breasts by a breast exhauster. The quantity thus taken away must not be excessive,or the glands will immediately begin again to secrete in larger quantity than before and the feelling of pain and distension will return. Only sufficient, therefore, must be drawn off to relieve the state of tension from which the patient suffers. When from any cause the mother finds it necessary to discontinue nursing her child (a condition that sometimes arises) or where a woman has given birth to a still-born infant, this condition of the breasts is most apt to occur. At the outset, when the breasts become swollen and painful, mild saline aperients should be administered and friction of the breasts with warm oil be resorted to several times a day. The saline aperients which will answer best are a little Epsom salts or a seidlitz powder. The application to the breasts of plasters, such as belladonna or soap, is frequently had recourse to, a hole being cut in the centre for the nipple, but a lotion, consisting of eau de Cologne and water, will frequently answer better.

MILK IN SICK NURSING

This article of diet, which forms the sole sustenance of young animals and their principal food during the early years of life, is one the importance of which in the treatment of disease cannot be over-estimated. When the stomach is young and tender, Nature provides this substance for the support of her offspring, and the manner in which life is sustained and growth enabled to go on is sufficient proof of its great nutritive value. When the stomach is again in a feeble state and the system requires nourishment with as little expenditure of energy as possible, what form of food should be able to answer so well as that which was the only source of supply in early life ? For easiness of digestion and for nutritive value there is nothing equally beneficial and in the treatment of all diseases milk ought to occupy the very foremost place. Like all fatty foods, it is more easily digested when some condiment is given along with it and for this purpose nothing answers so well as sugar. Salt and other substances may also be used, but sugar on the whole does best. For children who are deprived of the breast, ass's milk is that which is most suitable as a substitute, owing to its more nearly resembling human milk in composition than any other. Goat's milk is also very good, but as there is more or less difficulty attending the procuring of these, recourse is had in the majority of cases, and almost always in disease, to cow's milk. When cow's milk is given cold, it is apt to produce diarrhœa in some people and it also increases the urinary secretions, so that, in order to prevent these occurrences, it should be boiled. Water should not be added, as the diarrhœa may return, or be kept up if the milk is thus diluted, even although it has been boiled. Milk answers best in the treatment of disease if used as it comes from the cow ; that is, before the curd and whey have separated. The component parts of milk are not so good, nor do they prove so serviceable, as the milk itself in which they are combined. The cream in the milk, and before separation has occurred, is the most easily digested and most nutritive part of the milk, but when separated it does not answer so well in the treatment of disease. The curd also when given alone is indigestible and whey is apt to prove flatulent, although containing much nourishment.

MILK, SKIM

When the cream which rises on milk is removed, the liquid remaining is poorer in milk-fat and in total solids, but its percentage of milk-sugar is increased. It is a light and digestible food, but the ratio between its flesh-forming and heat-giving nutrients is different from that of fresh milk, the heat-givers being much lower. Its composition varies much, according to the extent to which the cream has risen and been removed. The following is an analysis of skim milk :—

COMPOSITION OF SKIM MILK.

	In 100 parts.
Water	89·0
Casein	4·3
Milk-fat	0·4
Milk-sugar	5·5
Mineral matter	0·8

MILK USED MEDICINALLY

When milk is used medicinally, it is often serviceable to dilute it with Pyrmont, seltzer, soda, or lime water. The two last, especially the soda water, prevent acidity and make the milk lie easier on the stomach. To obviate costiveness, which milk is apt to induce, it is often proper to mix brown sugar or magnesia with it. Milk is used medicinally in consumption, especially in its earlier stage ; in gouty affections, after the paroxysm has passed off ; and in many spasmodic and nervous affections and disorders of the general health. By boiling milk, its albuminous part is not coagulated into a mass like the white of an egg, on account of the large quantity of water through which it is diffused ; but a thin pellicle forms on the surface, which, if removed, is immediately replaced by another, and thus the whole of the albumen may be separated in successive portions. The effect of this process is therefore to diminish the nutritive quality of the milk ; but it may at the same time render it more easily digestible. We have known many invalids who could take boiled milk, who were unable to bear it in its natural state.

MIND, INFLUENCE OF, ON BODY

That there is an intimate relationship between mind and body by which they act upon and influence one another, all must admit. In health the influence of the mind strongly directed to a part and concentrated sufficiently long upon it will produce in the first instance functional derangement and afterwards lead to serious organic mischief. Thus, when attention is directed to the heart, it beats with greater rapidity and the individual is then said to suffer from palpitation; and should the palpitation continue unchecked for a sufficient length of time, it leads to enlargement, or as it is technically called, hypertrophy of that organ. Now, when the influence of the mind upon the body under the ordinary conditions of health may be of such a serious nature, how much more serious must that influence be when directed towards an organ already enfeebled by disease! In health the changes which are observed to take place in the countenance of a person who is under the influence of shame or fear must be familiar to all—the crimson cheek in the one case, the deathly pallor in the other: and when such wonderful effects are manifested when the bodily powers are strong and vigorous, how great must be the effect when these are debilitated by disease! Hence the imperative necessity for protecting the patient as far as possible from the influence of passion and preserving his mind in that calm and equal state which acts so beneficially upon the body in the time of disease. If a patient's attention is always directed to the seat of suffering, his misery is aggravated and his pain greatly increased; but endeavour to withdraw his attention and, if you succeed, you will allow the part that rest which is so necessary to the successful carrying out of those restorative changes which in disease Nature is ever working. But to withdraw a patient's attention from himself is no easy task and frequently it lies completely beyond his own power so to do. Did we, however, instead of urging the necessity of this upon the patient, endeavour to lead his thoughts into a different channel, we should accomplish more for him, and succeed better in the attainment of the object we have in view, than by all the arguments at our command. If you tell the patient that habitually to concentrate his mind upon himself is bad; if you tell him that by thinking about his disease he will aggravate the symptoms and increase his malady and that by withdrawing his attention from the seat of suffering he will best facilitate recovery and bring about a speedy cure, he will answer you that he is aware of all that and agree with everything you have said; but the mental concentration still remains, the symptoms are aggravated and recovery is delayed. The fact is the patient has not the power to cope with this influence so as to overcome it, and if, instead of urging him so to do, we engage his attention, unconsciously or unsuspectingly on his part, and get him thus thoroughly interested, we shall have accomplished for him more permanent results than could have been attained by many weary hours of struggling and fighting. By thus engaging his attention involuntarily you will have secured the desired rest to the part, and, while he has been forgetful of his sufferings, be assured that the work of recovery has been going on. The best means by which to attain this end is to tell the patient a good story that has a pleasant ending, or to read to him something in which he can feel interested. Anything that weighs upon a patient's mind, producing care or anxiety, always exerts a depressing influence upon the nervous system and tends to retard recovery. Everything of this kind should, therefore, be carefully guarded against and, as far as possible, evenness of mind maintained throughout. To worry a patient with household affairs when suffering from disease is certainly not the way to bring about a speedy return of health and strength.

MINDERERUS, SPIRIT OF

See MEDICINES, HOME.

MINERAL FOODS

The importance of water in this group is at once evident ; and although such large quantities are found in all our solid food, it is necessary to add more, for the purpose of dissolving all those constituents which are necessary to the functions of life. Although the heat-giving and flesh-forming foods are, many of them, insoluble in water, they are rendered so during the process of digestion. Starch is rendered soluble by the action of the saliva of the mouth, by which it is converted into sugar. The proteids are acted on by the gastric juice and are thus rendered soluble in water. The fats taken as food are decomposed by the bile and the pancreatic juice and converted into soluble soaps, which are readily dissolved by water and taken into the blood. Water is taken either cold or hot. It is made into soups, tea, coffee and chocolate, by the infusion and boiling in it of various substances. The other substances, besides water, belonging to the mineral group, are common salt and salts. Common salt is chloride of sodium and exists in abundance in sea-water. It has the power of preserving vegetable and animal substances from decomposition and is found in certain quantities in the bodies of all animals. The human body contains about three ounces, which is principally found in the blood. Unless certain quantities are taken daily, diseases characterized by debility are likely to occur. It may be taken in doses from day to day and no harm occur, as that which is not necessary for the use of the body is got rid of. The other saline matters which are found in the human body and which are excreted by the urine and bowels are obtained from all forms of food. Animal and vegetable foods lose some of these saline matters by cooking ; hence the importance of taking uncooked food of some kind every day. This should be effected by fruit, or vegetables in the form of salads. An instance of the value of fresh vegetables as an article of diet is seen in the treatment of scurvy. This disease is brought on by the absence of fruit, vegetables, or fresh meat on board ships. It is prevented by the supply of lemon or lime juice and vegetables cooked and preserved in tins.

MINERAL WATERS

These are mostly employed for the treatment of disease, but a few so-called mineral waters find a place as beverages. Artificial mineral waters are imitations of mineral spring waters, made by dissolving the salts which constitute the basis of the natural mineral waters in ordinary water impregnated with gases, especially carbonic acid gas. Experiments in their manufacture were made as early as the sixteenth century, but they have been produced in perfection only within the last sixty years, since chemical analysis has become an operation of minute exactness. Artificial mineral waters have some advantage over natural waters. The supply of the latter, exported from the springs of Continental Europe, is inadequate to the demand and most natural mineral waters lose materially by bottling. The springs, too, are subject to many changes and frequently vary in the quantity or the relative proportion of their respective ingredients. Artificial waters, on the contrary, are prepared according to analyses which represent the natural mineral waters when in their best condition. They are always the same in composition, in consequence of the technical perfection of their manufacture, and they produce the same general effect as the natural waters. They are more highly charged with carbonic acid gas than the latter, which ensures their keeping in any climate and renders them more pleasant to the taste.

MISCARRIAGE

The number of lives that are annually sacrificed by miscarriage alone is very great. There are few women the mothers of several children who have not miscarried at some period of their married life. The necessity for every female becoming intelligently acquainted with those causes of miscarriage over which she herself exercises so much control, will be apparent when it is remembered that after one or two miscarriages a woman is apt to get into that condition in which it becomes a habit with her to miscarry. Were it looked upon more seriously, more care would be taken both to prevent its occurrence and, having once occurred, to do everything to prevent its recurring. Absolute rest for several days after miscarriage is positively essential, yet many women leave bed a day or two afterwards, and some scarcely think it worth while remaining in bed at all. Need it be said that the majority who thus act live to repent of their folly ? Miscarriage is not confined to any one period of pregnancy. It may occur all through ; but the time of its most frequent occurrence is generally between the eighth and twelfth week of pregnancy. It has a greater tendency to come on at certain times than others ; thus, a woman is more apt to miscarry at the time she would have been poorly if she had not been pregnant, so that at these times she ought to be kept as free from excitement and every disturbing influence as possible. Miscarriage occurs most frequently towards the close of sexual activity and perhaps next in frequency in the newly married. Hence the necessity for vigilance on the part of the young wife.

MISCARRIAGE, CAUSES OF

The causes which may produce miscarriage are as follows :—Anything which gives rise to severe mental shock may bring it on—thus, sudden fright, great mental anxiety, anything which taxes the patient's strength severely, such as the lifting of heavy weights, excessive exercise on foot, on horseback, or driving or railway travelling. Falls also act injuriously and are frequently the exciting cause of a miscarriage. Blows also may produce it. Any undue excitement may cause it ; hence the necessity there is for the young married woman being on her guard. The amount of gaiety to which the newly-married are exposed and the unnatural mode of life inseparable from it are fertile sources of miscarriage during the early months of pregnancy. Luxurious living also predisposes to this. Scarlet fever, small-pox, and others of the diseases called exanthematous (that is, contagious diseases attended by fever and eruption), operate as powerful causes in the production of miscarriage. Some women of a naturally delicate constitution are more prone to miscarry than others. Strong purgative medicines are very apt to act injuriously upon the pregnant woman and may bring about miscarriage. Their use at this time should therefore be carefully guarded against. Indeed, none but the mildest forms of aperient medicine should be given to a pregnant woman. Many substances are employed criminally for the purpose of bringing on miscarriage, but frequently the unhappy creatures who make use of such means bring about their own destruction—the end they had in view never being attained. It need not be added that to procure abortion either through drugs or instruments is a felony, punishable at law. Severe and excessive sickness may bring about miscarriage, so that if the natural sickness should be excessive, the pregnant woman should at once consult her doctor, that means may be employed to keep it in moderation. All emetics during pregnancy are dangerous, being apt to bring about miscarriage. There are other causes which, operating upon the nervous system, give rise to irritation and these, if allowed to go on unchecked, may ultimately bring about miscarriage. Of this nature are the small thread-worms which frequently infest the lower bowel. Constipation is often a cause of irritation and if not attended to may at last lead to miscarriage. The irritation also of toothache is occasionally so severe as to threaten the patient with miscarriage.

MISCARRIAGE, SYMPTOMS OF

If, in the course of her pregnancy, a woman begins to experience feelings of languor, debility and general depression, and if in addition to these she experience an uneasy sensation about the thighs, loins and hips, with pains coming and going, she should be upon her guard, as these, although frequently unsatisfactory symptoms, may be regarded as premonitory of miscarriage. Shortly afterwards, however, if miscarriage is threatened, these symptoms will be succeeded by a discharge of blood. This discharge may be small in quantity and, after lasting for a short time, may pass off, to be renewed after the lapse of a brief interval. Instead of a discharge small in quantity, there may be a considerable gush of blood occurring quite unexpectedly. Should the bleeding be succeeded by no aggravation of the pains already referred to as occurring in the loins and hips, there is hope that proper treatment may avert the threatened miscarriage ; but if, instead, the bleeding be followed by pains increasing in strength and having more of a bearing-down or expulsive character about them, the probability is that the threatened miscarriage will not pass off, but that the pains will go on increasing in strength until the womb has emptied itself of its contents.

MISCARRIAGE, TREATMENT OF

The treatment of this condition naturally divides itself into three parts : (1) that which is necessary prior to the occurrence of miscarriage with a view to prevent it ; (2) that which must be adopted after it has occurred ; and (3) the treatment which it is desirable to pursue after it has occurred with a view to prevent its recurrence.

1. *Prevention of Occurrence.*—If the patient is suffering from weakness, debility and others of the symptoms mentioned above as premonitory of miscarriage, she should immediately go to bed. It is useless attempting to pursue any line of treatment as long as the erect posture is maintained. What is wanted most imperatively is rest in the recumbent position. The head must be kept low ; it ought on no account to be propped up with a number of pillows. The patient must be kept cool. She must not be encumbered with bedclothes, only sufficient being put over her to prevent her from being chilled. All articles of food and drink must be given nearly cold. The room in which she lies should be well ventilated and, if there is a fire in the apartment, it must not be allowed to overheat the room. The patient should be made to sleep on a mattress and there should be no curtains about the bed. The diet should consist of milk food ; it should be light and nourishing. Sago, arrowroot, tapioca may be given, a lightly boiled egg, a little gruel, toast and water and the like. No stimulants must be administered. The doctor should be sent for without delay, as this is the time when most can be done to prevent the occurrence of a miscarriage. Should it have gone beyond this stage and should the first thing to attract the attention of the pregnant woman be a discharge of blood, the same rules must be observed. Send without delay for the doctor; and meanwhile let the recumbent position be maintained. Attend to the rules already laid down in regard to the bed and the ventilation of the room. The diet must be light and as unstimulating as possible. On the arrival of the doctor, means will be taken to prevent the occurrence of miscarriage by allaying the uterine contractions, and every direction which he lays down must be rigidly adhered to. Should the discharge of blood be accompanied by pains of a bearing-down or expulsive character, the probability is that the case has proceeded too far and that miscarriage is inevitable. Should this be so, the patient must be strictly guided in all she does by her doctor, who now takes charge of the case.

2. *After-Treatment.*—As was before observed (p. 375), the occurrence of miscarriage is by many women regarded as a matter of little or no consequence and, as might be expected, the after-treatment is often grossly neglected. It is, perhaps, only after the lapse of years that the suffering which this neglect has given rise to causes the truth to dawn upon the mind. When a miscarriage has occurred, as great care is necessary as after a delivery at the full time. If a woman rise a day or two after she has miscarried, especially if it be beyond the third month, the womb, which was increased in size, has no time to regain its normal dimensions, so that when she begins to move about again, the ligaments which maintain it in position are no longer able to support the increased weight thus put upon them ; they therefore yield to the excessive strain, and the womb falls down, as it is called, or becomes displaced. When this occurs, it may give rise to trouble at the time ; more frequently, however, little present

annoyance is experienced, although the foundation of future misery has been assuredly laid. After miscarriage the recumbent position should be maintained for a week or ten days, the diet for the first few days being light and easy of digestion. The room must be kept cool and well ventilated. On leaving bed the patient should be careful to guard against maintaining the erect posture too long at a time. She should for a week or so longer rest upon a sofa or couch for several hours each day.

3. *Prevention of Recurrence.*—When a woman has once been the subject of miscarriage, the question naturally arises, What must she do to prevent it from happening again? If it has occurred in a woman who appears to be at the time in an enfeebled state of health, attention must be directed to its improvement before she becomes again pregnant. For this purpose nothing seems to answer so well as change of air. This is a powerful restorative means and frequently is one of the first things to repair a debilitated constitution. The change should be to some quiet country spot, or to the seaside; if the latter be chosen, fashionable watering-places had better be avoided and a place free from bustle and excitement selected. This will frequently do much to restore vital energy and bring back health and vigour to the exhausted frame, but it may not accomplish all; hence the necessity there is in such cases of bringing the patient under medicinal influence as well. For this purpose a well-directed course of tonic treatment should be begun and no preparations will be found so useful as those of quinine and iron. These two substances may be had in the form of pills, or combined in the citrate of iron and quinine, of which five grains may be taken in water three times a day. This diet should also be attended to. It must be light and nourishing. Milk, eggs lightly boiled and farinaceous substances, such as arrowroot, sago, tapioca, corn-flour and the like, may be given. Bread, brown or white, may also be eaten, the latter agreeing better when toasted. Animal food may also be taken, but only that which is more easy of digestion—veal, pork and such like being avoided. All pastry and made dishes, or those which are highly seasoned, must be forbidden for a time. A moderate quantity of tea, coffee or cocoa may be taken daily. The sleeping apartment should be well ventilated. A horsehair mattress is preferable to sleep upon and is more conducive to the maintenance of health than a feather bed. There should be no curtains about the bed. The patient should be regular in her hours of sleep and ought to retire to bed early. Irregular hours, sitting up late at night and engaging the mind with what is calculated to produce excitement are fruitful sources of disturbed and restless nights. The mind should be kept as far as possible calm and tranquil, especially before retiring to rest. A moderate amount of exercise should be taken daily. It is as bad for the patient to remain constantly indoors as it is for her to fatigue herself while taking exercise. The best time for taking exercise is between breakfast and dinner and that kind of exercise which answers best is walking. This must never, of course, be carried so far as to fatigue the patient. The state of the bowels ought also to be attended to and should be carefully regulated by diet, as far as possible, but this

failing, recourse must be had to the milder laxative medicines, such as castor oil, compound liquorice powder, or pills of colocynth and hyoscyamus. No severe purgative medicines are to be made use of ; they are quite unnecessary and are frequently productive of harm. A little Pullna water taken the first thing in the morning will often answer admirably for this purpose. A remedy, powerful alike in restoring the debilitated constitution and in causing the womb to regain its tone will be found in baths. In summer the sponge-bath or the shower-bath may be employed and cold water used ; in winter the same baths will prove of great service, but tepid water should be employed instead of cold, at least to begin with. Great benefit will be derived from the daily employment of the sitz bath. The water should be slightly tepid. During the absence in the country and for several months after the occurrence of a miscarriage, the marital relationship should cease. If the woman has miscarried several times, she should be very careful of her health when again pregnant. When she has again become pregnant, she must sleep apart from her husband. This is absolutely necessary to secure her carrying to the full time. She should rest frequently during the day and the amount of exercise taken must never be such as to produce fatigue. The diet must be plain, nourishing without being stimulating and all alcoholic beverages must be avoided. The state of the bowels must also be attended to. When the time at which she formerly miscarried approaches, great care requires to be exercised. She should rest in the recumbent position for several hours daily and, if symptoms of impending miscarriage manifest themselves notwithstanding these precautions, she must at once go to bed and send for medical assistance. At the approach of each menstrual period, that is to say, at the approach of the times at which she would have been "unwell" had she not been in the family way, the utmost vigilance is necessary. At such times the tendency to miscarry is always greater than at others, hence the necessity for increased precaution. The amount of exercise should now be diminished. The baths may be continued with advantage, with the exception of the shower bath, which is apt to prove too severe at this time. In respect of prevention, another point must be seriously impressed upon the young married woman. If she hopes to be a mother she ought to be prepared cheerfully to deny herself many things—such as dancing, tennis, horse-riding, bicycling and the like—which are perfectly harmless and proper in a normal state, but which in the pregnant condition are very apt to induce miscarriage.

MIXTURES

The following mixtures are arranged in alphabetical order, partly in reference to the disorders for which they are prescribed, partly in reference to the effects that they produce.

1. *Anæmia.*—Take of tincture of the perchloride of iron, three drachms ; glycerine, five drachms ; water, an ounce. Give in doses of a teaspoonful in water three times a day, shortly after food. When, in conjunction with this impoverished state of the blood, the heart's action is weak and, perhaps, irregular, the following mixture may be given with advantage : take of tincture

of digitalis, two drachms ; tincture of perchloride of iron (steel drops), three drachms ; glycerine, half an ounce ; water, seven drachms. Mix. A teaspoonful to be taken three times a day in water.

2. *Bronchitis, Chronic*, No. 1.—Take of carbonate of ammonia, a drachm ; spirit of ether, an ounce; syrup of squills, two ounces ; infusion of senega, to make eight ounces. A tablespoonful to be taken every four hours in half a wineglassful of water.

3. *Bronchitis, Chronic*, No. 2.—Take of sweet spirit of nitre, two drachms ; syrup of squills, an ounce ; paregoric elixir, an ounce ; infusion of senega, to make eight ounces. Take a tablespoonful in a little water three times a day. This mixture is useful in cases of cough resulting from exposure to cold.

4. *Consumption.*—Take of diluted hydrocyanic acid, half a drachm ; diluted nitric acid, three drachms ; glycerine, an ounce ; infusion of quassia, sufficient to make eight ounces. *Dose* : a tablespoonful in water every four hours. Useful in the early stage of consumption.

5. *Cough, Chronic and Habitual.*—Take of mixture of gum ammoniac, cinnamon water, of each two ounces and a half ; ipecacuanha wine, two drachms ; paregoric elixir, half a drachm ; syrup of tolu, six drachms. Mix. The dose of this composition is a tablespoonful every four hours, or when the cough is troublesome.

6. *Cough, Recent.*—Take of honey, five ounces ; treacle, a quarter of a pound ; best vinegar, seven ounces. Mix them and simmer in a common pipkin over the fire for fifteen minutes. After removing it from the fire and the mixture has become luke-warm, add two drachms of ipecacuanha wine. The dose is a tablespoonful every four hours for adults.

7. *Debility with Constipation.*—Take of tincture of the perchloride of iron, three drachms ; tincture of nux vomica, two drachms ; glycerine, half an ounce ; water, seven ounces. Mix. A tablespoonful in half a wineglassful of water every four hours.

8. *Diuretic and Sedative—Steel and Henbane.*—This is useful as a diuretic and sedative in dropsical affections. Take of tincture of the perchloride of iron, three drachms ; tincture of henbane, one ounce ; water, to make eight ounces. Mix. *Dose* : a tablespoonful in a wineglassful of barley-water three times a day.

9. *Emetic for Adults*, No. 1.—Take of powdered mustard from one to two teaspoonfuls. Mix in a tumblerful of warm water.

10. *Emetic for Adults*, No. 2.—Take of sulphate of zinc, twenty grains ; water, a sufficient quantity. Mix and give as an emetic, to be followed by copious draughts of tepid water. This is a useful emetic in cases of narcotic poisoning.

11. *Emetic for Children.*—The safest emetic is ipecacuanha wine. It may be given in doses of half a teaspoonful to a teaspoonful, in sweetened water, followed by draughts of tepid water and repeated every ten minutes till vomiting results.

12. *Tonic for Debility—Steel and Quinine.*—Take of sulphate of quinine, sixteen grains ; tincture of perchloride of iron (steel drops), three drachms ; infusion of quassia, to make eight ounces. This is a useful tonic in cases of debility, especially when accompanied with an impoverished state of the blood.

It is very useful, also, in convalescence from acute diseases, to give a patient an appetite for food when none exists. The dose is a tablespoonful in a wineglass of water, three times a day before food.

13. *Tonic for Indigestion.* No. 1. —Take of compound tincture of cinnamon, two drachms ; syrup of orange-peel, two drachms ; infusion of calumba, five ounces and a half. Mix. The dose is two tablespoonfuls every four hours.

14. *Tonic for Indigestion*, No. 2. —Take of infusion of calumba, five ounces and a half ; compound tincture of cinnamon, two drachms ; syrup of orange-peel, two drachms. Mix.

15. *Tonic for Indigestion*, No. 3. —Take of bicarbonate of potash, half an ounce ; infusion of calumba eight ounces. Mix. A tablespoonful in water three times a day. Useful when the urine is acid and high-coloured.

16. *Tonic, General.*—Take of nitrohydrochloric acid, three drachms ; infusion of gentian, sufficient to make eight ounces. Mix. A tablespoonful in a wineglassful of water three times a day.

17. *Whooping Cough*, No. 1.—Take of tincture of belladonna, one to two minims ; bromide of potassium, five grains ; camphor water, a drachm. To be taken every four hours. May be given to a child one or two years old.

18. *Whooping Cough*, No. 2.—Take of bromide of potassium, bromide of ammonium, of each eighty grains ; tincture of belladonna, half a drachm ; water, to two ounces. Mix and give a teaspoonful to a child every three hours, in a little water.

MOLARS

See TEETH, PERMANENT

MOTHER, TREATMENT OF, AFTER LABOUR

On the removal of the after-birth, the mother ought to be allowed to remain just as she is for about an hour, after which time the immediate risk of bleeding will be in great measure over and the soiled linen can then be taken away. Should any attempt be made to do this immediately after the expulsion of the after-birth, it may be attended with severe hæmorrhage and even cost the patient her life. An hour having elapsed, the draw-sheet should be removed along with the soiled garments. This must be done with as little disturbance to the patient as possible and, after the removal of the soiled articles is completed, the clean chemise—which will have been folded up under the armpits—should now be brought down. After this a warm napkin should be placed to the external parts, or, preferably, placed not in immediate contact with the parts, but laid flat out under the hips. A clean sheet, well aired, should now be placed under the patient and the binder applied. Perhaps the best kind of binder is one made of unbleached calico, about a yard and a half long and eighteen inches deep, with the upper part cut away so as to render the top narrower than the bottom, which enables it to be applied more regularly ; if made slightly narrower immediately above the lower edge than a few inches above it, it will the better maintain its position. The binder ought always to be made so that it will extend below the fulness of the hips and embrace the upper part of the thighs. It must not be applied too tightly as is sometimes done—a moderately firm support being all that is required. It was formerly the custom to place some more solid article, such as a book, a pincushion, or a folded towel under the binder and over the womb, to compress it and so prevent flooding. Such things had, however, better not be introduced, as they are apt to interfere with the proper contractions of the womb and so prove obnoxious. While the binder is being applied and, indeed, while everything is being done to the patient at this time, she must be kept as passive as possible. The fewer the efforts she makes on her own behalf the better. The most serious risk of dangerous hæmorrhage, or even of immediate death, is sometimes incurred by women raising themselves to the sitting posture at this time, and they cannot be too strongly impressed with the necessity for remaining both recumbent and passive. All necessary changes having been accomplished, the patient should now be raised a little higher in bed and for this purpose two assistants will be required. They should stand one at each side of the bed and draw the patient carefully up. The bed-clothes should now also be arranged about the patient and, if she feel chill, some extra covering may be required and a petticoat, warmed before the fire, may be wrapped round her feet. She must, on no account, be overburdened with bedclothes, as too great heat at this time may act injuriously. The changing of the patient being now finished and everything about the bed being arranged comfortably, she may be given something to eat. The best thing to give her at this time will be a cupful of tea and milk, about equal parts, or some milk and bread. If preferred, a little beef-tea may be given instead. No stimulants of any kind must be offered to the patient, unless they have been specially ordered by the doctor. When the patient has had something to eat, the house should be ordered to be perfectly quiet and she should be induced to sleep.

MOUTH

The mouth may be broadly spoken of as an irregular cavity that contains the organs of taste and mastication. It is not only the most expressive and characteristic, but it is also the most important of all the features. No other portion of the human organism is of such complex structure and no other has such diversified functions to perform. The mouth is the organ of taste, speech, song, mastication and insalivation ; it is the avenue for the entrance of the food and drink essential to life and the channel through which passes much of the air which is inhaled, as well as that which is respired. (This last function, however, is better and more naturally discharged through the nostrils. Every child, from its tenderest years, should be taught how to breathe). The same membrane which lines its cavity is continued throughout the nose, the throat, the stomach and the alimentary tract ; throughout the larynx, the windpipe, the bronchial tubes and the lungs. It is thus closely related to the functions of digestion and respiration, while by open passages direct communication is maintained with the eyes, ears and nose and, by the nerves, with which it is abundantly supplied, with every part of the body. The mouth is made up of the lips, cheeks, upper and lower jaws, with their alveolar processes ; the hard and the soft palate, the tongue, salivary and mucous glands, mucous membrane, gums and teeth. It is a wonderful combination of bones, muscles, arteries, veins, nerves, glands, membranes and a curious structure of hard and soft tissues constituting the teeth. These, like all other parts of the body, depend upon the general system for their development and nourishment.

MOUTH, HYGIENE OF THE

See HYGIENE OF THE MOUTH.

MUCOUS GLANDS

(Latin, **mucus,** "discharge from nose").

These are a numerous class. They are very small, consisting of little bags formed by a peculiar membrane and opened by minute ducts, through which they discharge their contents. They are distributed upon the mucous membrane of the tongue and that which lines the nose, windpipe, stomach, intestines and bladder, furnishing a peculiar kind of fluid called mucus, with which those parts are lubricated.

MUCOUS MEMBRANE

This membrane lines the nose, mouth, throat, air-passage of the lungs, stomach, intestines and other free passages of the body. In the stomach and intestines it is thrown into folds, which increase the extent of its surface and prevent the food from hurrying through the alimentary canal with too much rapidity. It is soft, velvet-like in appearance and is of a pale-pink colour when in health, but red when inflamed. It secretes a peculiar fluid of a slimy nature which is called mucus. Blood frequently exudes from this membrane, constituting hæmorrhage, which may take place from the lungs, stomach, or any other part which it lines. A false membrane sometimes forms upon its surface, which in croup is coughed up from the windpipe, and in other diseases, as dysentery, is discharged from the bowels. This membrane, though ever so much inflamed, never forms adhesions. If it did, the intestines, windpipe, throat and other free passages might become closed up, when death would be the inevitable consequence.

MUCOUS MEMBRANE OF NOSE, ETC.

The mucous membrane of the nasal passages and of the windpipe is provided with minute brush- or hair-like processes, visible only under the microscope, which are continually waving towards the exterior of the body and which thus assist in washing out any excess of mucus, or particles of dust, which have been inhaled into the nose or windpipe. In certain affections these little hair-like appendages (cilia) are destroyed, without being reproduced, as they are in a healthy state, and then there is some difficulty in getting rid naturally of excessive mucus or intrusive matter, giving rise to more or less painful voluntary efforts of hawking, hemming and coughing to eject it. Besides this, the delicate mucous membrane is exposed to the irritation of the air and thus becomes further and further diseased, sometimes leading to the formation of real sores or ulcers.

MUCOUS MEMBRANE OF THROAT

All the structures of the throat are lined, or covered rather, with mucous membrane, containing numerous little glands, which secrete a bland, lubricating fluid, which keeps the parts moist, pliable and comfortable. When this fluid is deficient, the parts become dry and uncomfortable; and when it is in excess, it becomes mingled with little cast-off scales, similar to those shed by the skin, as observed in the water after a bath, forming thick, tenacious masses of mucus, which irritate the parts and give rise to cough to get rid of them.

MUMPS

This disease, which is so called because it hurts to speak and makes the patient *mumble*, is inflammation of the parotid and submaxillary glands; it is painful, but not dangerous, attacking young persons chiefly, but rarely children under one year of age. It is infectious and sometimes epidemic.

MUMPS, SYMPTOMS OF

There may be for several days a languid feeling and severe headache, and the trouble is recognized later by the pain under one ear, which is worse on opening the mouth or chewing: a swelling is formed in the parotid gland, just under the ear, which gradually pushes out the lobe of the ear and is soft and doughy. It may appear on one side only, or on both in turn. At its height the patient can hardly move the jaw or speak. There is some fever with the disease, but in from two to five days all the symptoms subside.

MUMPS, TREATMENT OF

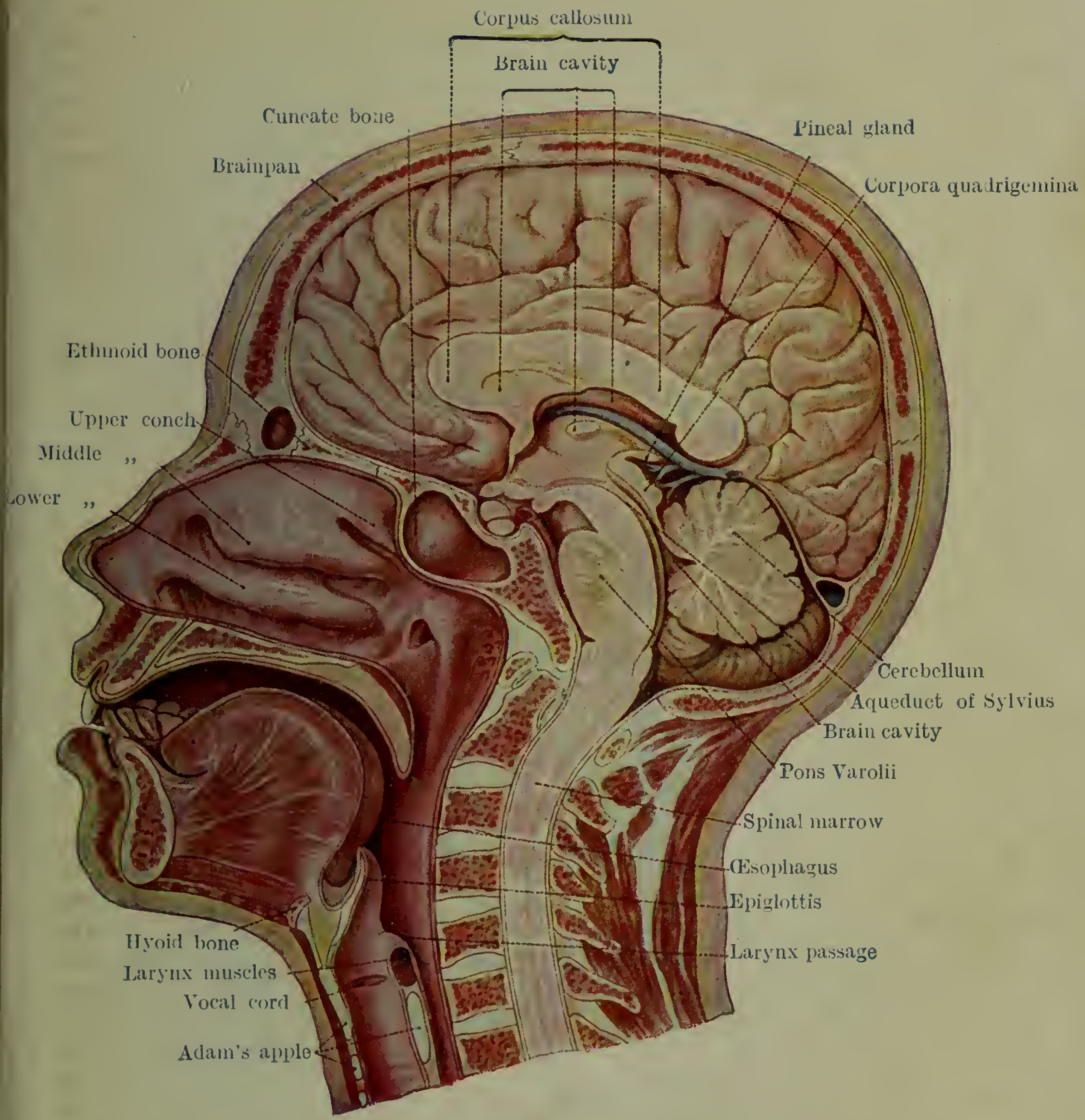
There is little to do beyond isolating the patient in his room (which must be kept warm, chills being dangerous) and regulating the bowels and digestion. Cover the swelling with wool wadding. If pain be severe, hot fomentations may be applied, or a plaster of equal parts of extract of belladonna and glycerine spread on and covered with wool, or a little belladonna rubbed in very gently. Let the diet consist of light and easily eaten articles—broth, gruel, eggs and other soft things. Take no one's advice except the doctor's. Send for him because of possible complications. If the swelling is hard and pulsating, the doctor should always be consulted, as the ear may be involved and the hearing impaired. Isolation must last for a week after the swelling has gone.

MUSCLE, CONDITION OF, IN LIFE, AND DEATH

(Latin, **musculus**, "little mouse," from the mouse-like movement under the skin).

Huxley says that "muscle is a highly elastic substance. It contains a large amount of water, almost as much as the blood, and, during life, has a clear and semi-transparent aspect. When subjected to pressure in the perfectly fresh state and after due precautions have been taken to remove all the contained blood, striated muscle yields a fluid which undergoes spontaneous coagulation at ordinary temperatures. At a longer or shorter time after death this coagulation takes place within the muscles themselves. They become more or less opaque and, losing their previous elasticity, set into hard rigid masses, which retain the form which they possess when the coagulation commences. Hence the limbs become fixed in the position in which death found them, and the body passes into the condition of what is termed the 'death-stiffening,' or *rigor mortis*. After the lapse of a certain time the coagulated matter liquefies and the muscles pass into a loose and flaccid

VERTICAL SECTION THROUGH THE SKULL.



condition, which marks the commencement of putrefaction. It has been observed that the sooner *rigor mortis* sets in, the sooner it is over ; and the later it commences, the longer it lasts. The greater the amount of muscular exertion and consequent exhaustion before death the sooner *rigor mortis* sets in."

MUSCLE, DEFINITION OF

The muscles constitute that portion of the body which we call flesh and are the proper name for what is known as lean meat. Instead of being in one solid continuous mass, as might be supposed from its external appearance, the flesh of the body is found to be composed of a vast number of separate pieces or strips, of various lengths and shapes, but seldom more than half an inch in thickness, each enveloped in a thin transparent membrane, and the whole arranged in layers one above another, giving to the body bulk, form and symmetry. These are called muscles and, by their contraction and relaxation, produce the various motions of which the body is capable. The human body contains over five hundred of these muscles, the greater number of them being arranged in pairs. In structure a muscle is composed of small bundles of fibres called fasciculi and each of these fibres is composed again of filaments or threads. These bundles are enveloped in thin cellular tissue or membrane and the whole put together to constitute a muscle. Upon the arms and legs the muscles are situated around the bones and serve to invest and defend them, while they also form to some of the joints their principal protection. Upon the trunk they are spread out to close cavities and form a defensive wall which yields to internal pressure and the expansion of the body. The oblique abdominal muscles terminate in a broad, pearl-coloured fascia, or aponeurosis, which completely covers the front or middle portion of the abdomen ; while the dorsal muscles, or muscles of the back, blend into one mass of tendon below, which expands and attaches to the sacrum and back part of the iliac crest or hip bones. On the wrists and ankles the long tendons of the muscles are closely and firmly bound down by strong bands called the annular ligaments. Notwithstanding their great number, the muscles all have names—Latin names. These names generally have reference in their meaning to the character or use of the muscles to which they are applied, so that those familiar with Latin, on hearing the name of a muscle, immediately know something of its general character, situation and use.

MUSCLES, CLASSIFICATION OF, ACCORDING TO ACTION

Those muscles by which a limb is bent are called flexors (Latin, **flexus**, "bent"), and those by which it is straightened extensors (Latin, **extensus**, "stretched out"). These two sets of muscles are said to antagonize each other ; that is, the flexors pull in one direction and the extensors in another, so that, by their alternate contraction and relaxation, two distinct and opposite motions are produced.

MUSCLES, CLASSIFICATION OF, ACCORDING TO CONTROL

The muscles are also classified under the two heads of voluntary and involuntary. The first are such as are under the control of the will and enable us to walk, run, leap and perform any other voluntary act. The involuntary muscles, on the other hand, are those over which the will has no influence. The heart is a muscular organ, acting with tremendous force in propelling the blood through arteries; the stomach also and the intestines have muscular coats by which they are enabled to contract and relax for the purpose of moving their contents; yet they are uncontrolled by the will, acting independently of it, and are therefore denominated involuntary muscles. There are others which are both voluntary and involuntary and are therefore said to be mixed, as the diaphragm and other muscles of respiration. They perform their regular functions, asleep or awake, whether we will it or not: yet we can, by an effort of the will, cause them for the time being to act faster or slower, as we please.

MUSCLES, CLASSIFICATION OF, ACCORDING TO FIBRES

Muscles may be arranged into several classes, according to their shape and the arrangement of their fibres. Some are completely longitudinal—that is, long and spindle-shaped, each extremity terminating in a tendon, as the muscles of the arms and legs; in others the fibres are disposed like the rays of a fan, converging to a tendinous point and constituting what is termed a radiate or broad muscle. Again, we find some with their fibres converging, like the small feathers upon a quill or pen, to one side of a tendon—or it may be to both sides of it—running the whole length of the muscle.

MUSCLES, CLASSIFICATION OF, ACCORDING TO PARTS OF BODY

In conformity with the general division of the body the muscles may be arranged into four parts: (1) those of the head and neck; (2) those of the trunk; (3) those of the upper extremities; (4) those of the lower extremities. In their distribution they may be said to form two layers, a superficial and a deep-seated one. In some places, however, there are more than this. On the back, for instance, the muscles are arranged in six layers, one above the other, in order to produce the various complicated movements of the back, neck, arms, chest and abdomen. All the different movements of the body and its parts are produced by the muscles, the bones serving in most cases as the levers of motion.

MUSCLES OF SKIN

With regard to the muscles of the skin, in certain animals a very abundant muscular layer is developed immediately beneath the skin, so that they possess the power of wrinkling it and shaking it, in order to rid themselves of dust, insects, etc. In man this is only found in a few situations and moderately developed; but the human skin possesses within its structure a certain amount of muscular fibres which are of especial importance in the study of the sebaceous glands. These muscles in the skin belong to the class of what is called smooth or unstriped muscles, which differ from those composing the mass of muscles of the limbs, etc., in that they are not controlled by the will; they are therefore called involuntary muscular fibres. They are, of course, extremely small, but are readily seen by the microscope. They extend from near the end or deeper portion of each hair follicle, in a slanting direction, and terminate, or are inserted, near the outer surface of the corium or true skin.

MUSCLES OF SKIN, ACTION OF, ON HAIR

The name given to these muscles is *erector pili* ("raiser of a hair") or in the plural *erectores pilorum* ("raisers of hairs"), so called because when they contract they cause the hair to stand more or less erect and to protrude a little from the skin; thus, in the cat, when excited or enraged, all the hairs become erect and bristling. The action of these muscles may be well observed in man in what is called "goose skin," when, from exposure to cold, or sometimes from emotional causes, the skin may be observed to be thrown into numerous projections. This condition may be readily observed on entering a warm bath; if the portion not immersed get a little chilled and if the surface be yet dry, the fine hair on the arm may be seen to rise and stand more or less erect, while as the condition subsides the hairs sink to their former position. This may be repeated several times, the hairs rising and falling together, like a field of grain under the wind.

MUSCLES OF SKIN, ACTION OF, ON SEBACEOUS GLANDS

But these muscles have another action which is very important and that is the emptying of the sebaceous glands. These latter structures have no muscular coat of their own and their secretion, which is constant, oozes out upon the surface. Now, where there are large hairs, as upon the scalp and beard, these muscles more or less embrace the sebaceous glands and, by their contraction, empty them from time to time and by this means prevent an accumulation of sweat, or prevent the openings from becoming clogged.

MUSCLES, THEIR USES AND ACTION

To understand the uses of the various muscles, the reader has only to bear in mind that the object of muscular contraction is simply to bring the two ends of the muscle, and the parts to which they are attached, nearer to each other—the more movable being always carried towards the more fixed point. Thus, when the sternomastoid muscle contracts, its extremities approximate and the head, being the movable point, is pulled down and turned to one side. This may be easily seen in the living subject, the muscle being not less conspicuous than beautiful in its outline. Again, when the powerful rectus or straight muscle on the front of the thigh contracts with force, as in the act of kicking, its lower end, attached to the knee-pan and leg, tends to approximate the upper or more fixed point and pulls the leg strongly forwards. This also occurs in walking. But when the sartorius or tailor's muscle is put in action, its course being oblique, the movement of the leg is no longer in a straight line, but in a cross direction, like that in which tailors sit: hence the name sartorius. Another variety of effect occurs when, as in the rectus or straight muscle of the belly, sometimes one end and sometimes both are the fixed points. When the lower end is fixed, the muscle bends the body forwards and pulls down the bones of the chest. When, as more rarely happens, the lower end is the movable point, the effect is to bring for ward and raise the pelvis and inferior extremities; and, when both ends are rendered immovable, the contraction of the muscle tends to compress and diminish the size of the cavity of the belly and thus not only assists the natural evacuations, but co-operates in the function of respiration. In contemplating this arrangement, it is impossible not to be struck with the consummate skill with which every act of every organ is turned to account. When the chest is expanded by a full inspiration, the bowels are pushed downwards and forwards to make way for the lungs: when the air is again expelled and the cavity of the chest diminished the very muscles which effect this by pulling down the ribs, contract upon the bowels also—pushing them upwards and inwards, as can be plainly perceived by any one who attends to his own breathing. By this contrivance a gentle and constant impulse is given to the stomach and bowels, which is of great importance to them in contributing to digestion and in propelling their contents ; one cause of the costiveness with which sedentary people are troubled is the diminution of this natural movement owing to bodily inactivity. To effect peristalsis, as this movement is called, the co-operation is required of both nerves and muscles. Excess of action is followed by results peculiar to itself. If the nerves predominate, either constitutionally or from over-exercise—as they are apt to do in highly nervous temperaments,—their excessive irritability renders them liable to be unduly excited by ordinary stimuli ; and hence, as in hysteric and nervous women, a proneness to sudden starts, cramps and convulsions, from causes which would scarcely affect a person differently constituted. Such persons have little muscular power except under excitement ; they then become capable of great efforts of short duration, but sink proportionately low when the stimulus is past. If, on the other hand, the muscles predominate, as in athletic, strongly-built men, the nervous system is generally dull and little susceptible of excitement, and the muscles which it animates are consequently little prone to the rapid and vivacious action that accompanies the predominance of the nervous functions. Strength and capacity for bodily labour are then the characteristics. Great muscular power and intense nervous action are rarely found in the same person ; but when they do happen to meet, they constitute a perfect genius for muscular exertion and enable their possessor to perform feats of strength and agility which appear marvellous to those who are deficient in either condition. The most successful wrestlers and gladiators among the ancients seem to have owed their superiority chiefly to the possession of both endowments in a high degree ; and to-day the most remarkable combination of the two qualities is exhibited by harlequins, clowns, rope-dancers and equestrian performers, and also by those who display their strength and power of equilibrium in balancing wheels, ladders, or other heavy bodies on the chin and whose performances require, from the small muscles of the jaw and neck, a force of contraction which, when reduced to calculation, almost exceeds belief.

MUSTARD PLASTER

For a mustard poultice, or plaster, a sufficient quantity of powdered mustard should be taken to make a thin paste of the required size. This should be mixed with boiling water, with a small quantity of vinegar added, if a very strong poultice is required, and spread on brown paper, or linen, with a piece of thin muslin over it. If the skin is very irritable afterwards, a little flour should be sprinkled over it. This will remove the burning sensation. After the use of any kind of mustard poultice the skin should be carefully wiped with something very soft, so that no mustard be left behind. When a less drastic counter-irritant is required a mustard leaf (which involves scarcely any trouble) may suffice.

MUSTARD POULTICE

See Sinapisms.

MYALGIA

This condition is really pain in the muscle. When you laugh till your sides ache, or feel stiff after the first day's skating, you are suffering from myalgia. Both sexes are liable to it, the parts most usually affected being the trunk, abdomen, legs, side, shoulder-blade, arms and back of the neck. As a rule the soreness will depart after a day's rest. Occasionally artificial support to a part may be needed, such as a waist-belt, a plaster, a wrist-strap. In severe cases a course of treatment at a hydropathic is often beneficial.

MYOPIA, OR SHORT SIGHT

(Greek, **muo**, "I close"; **ops**, "eye").

Short sight has for many years been called myopia, because short-sighted persons have the habit of half-closing the lids in the effort to see distinctly; and this term has been retained by modern authors. While in the perfectly formed, or emmetropic, eye the focus for parallel rays of light falls accurately upon the retina and in the hypermetropic eye falls beyond it, in myopia it falls in front of the retina. In hypermetropia the axis of the eyeball is shorter than the focal distance for parallel rays and only convergent rays can be brought to a focus upon the retina; in myopia the axis is too long, and no object can be seen distinctly until it is brought near enough to the eye to throw the focus of the rays of light coming from it back to the false position of the retina. It is thought that the tendency at least to short-sight exists, in most cases, at birth and that it is, in a high degree, hereditary. It is possible, however, that it may sometimes originate in later life from abuse of the eyes and there is no doubt that it is decidedly and often very rapidly increased. That it is extensively increased by close work, and transmitted from parents to children through generations, is shown by its invariably greater prevalence among the classes that make most demands on the eyes. It is one of the penalties of advancing civilization; and is met with more frequently in old communities than in new, in cities than in the country, in the professions and among students and literary people than among those who labour only with their hands. Its greatest prevalence is in Germany, where it has long been impossible to fill the ranks of the army without allowing soldiers to wear glasses. It is comparatively rare among seamen and farmers and no one ever heard of a short-sighted North American Indian. Because short-sighted people can see small objects with great distinctness and may be able to read after middle age without glasses, there is a popular notion that short-sighted eyes are stronger than others. This is a dangerous delusion. Though myopia may remain stationary and be merely a matter of slight inconvenience, compensated for by the ability to read without glasses at the age when others are entirely dependent upon them, an eye with a high degree of short sight is almost always an unsound one. In short, myopia, when it exists in a high degree, is, in a large proportion of cases, a serious disease and requires the most careful and most skilful treatment. Another common mistake is that short-sight diminishes with age. Old-sight affects only the near point of distinct vision and not the far point; hence its effect upon a short-sighted eye will be to prevent it from seeing small objects so near as in youth, but not to make distant vision more distinct. As a short-sighted eye is adapted only to divergent rays of light, it requires, for distant vision, the concave glass that will give to parallel rays the necessary degree of divergence. If, for instance, the farthest point of distinct vision is twelve inches, distant objects will be made distinct by a double concave glass of twelve inches' focal distance; because such a glass gives to parallel rays of light coming from a distance the same degree of divergence the light has which comes from an object twelve inches from the eye. Persons beyond middle age and sometimes younger persons who are too short-sighted to read comfortably without glasses, require two pairs, one for distance and one for reading. The selection of glasses for short-sight requires great care, as much harm may be done by using those that are too strong or that are not properly fitted to the eye.

NÆVUS

(Latin, **nævus,** "mole" or "mark").

Nævi are of several kinds. First, we have the small (or large) brown spots often on the face, constituting a mole. If these grow hair, we have a second variety; instances of both these may be met with daily, especially in elderly people. They should really not be interfered with, unless too unsightly, when surgical or other aid may be called in; but it is utterly useless to attempt their removal by means of washes, salves, etc. The third variety of nævus is what is known as nævus vasculosus, and is made up of enlarged blood-vessels. It may be a mass of larger vessels and form a tumour, or swelling, of a round or oval shape and of varying size and height; or it may be composed only of the smaller capillaries and be level with the surface. The latter form constitutes what is known as the port-wine mark or claret-stain and is the deformity more commonly called mother's mark or birth-mark. Very ridiculous ideas are prevalent relative to the causes of these marks, of which we know nothing. It is often very gravely asserted that the mother, during her pregnancy, spilled some claret, or perhaps stained her face with raspberry, etc., and that the child bore the mark in the same place; or, with reference to the dark moles, they will assert that, while bearing the child, they were startled by a mouse, etc., and that the mark is a consequence. Such stories belong to a past age and are only mentioned here to deny absolutely their truth, because they are still current, even among people of some education. There is also a popular prejudice against removing any of these birth-marks or mother's marks, even though their presence in some instances may render the bearer hideous. There can be, of course, no objection to removing them ; but this is unfortunately attended with some difficulty. It is, of course, perfectly useless to attempt to accomplish this by any washes or salves ; it can only be done by the doctor or surgeon, to whom alone should be entrusted the duty of treatment. In the vast majority of cases they are far better left alone.

NAILS

The nails are structures which are very nearly like the epidermis and the hair, composed of a hard, horny matter, arranged in the form of cells. They are indeed only altered portions of the external or epidermal layer of the skin, and rest upon their nail beds in much the same manner as the epidermis or scarf skin lies on the true skin or derma. Medical men speak of the root and the body of the nail—the root being that portion towards the hand which is situated beneath the skin, the body the rest of the nail. The matrix is the bed upon which the nail rests and to which it is firmly adherent. Nails grow from the root, just as do the hairs, and only slide over their matrix or bed, so that an injury to the matrix, such as slivers beneath the nail, or even a bad bruise, need not cause a disfigured nail other than the portion directly injured ; whereas injury or disease of the root will generally cause a distorted and disfigured nail. The nails seldom fail to give indications of sickness which has been at all severe by an arrest of development, which has taken place in the root at the period of sickness. The nails also show peculiar characteristics in other states than acute sickness. Thus, in pulmonary consumption they are generally long and curved both from side to side and from end to end ; in gout and eczema they are brittle and ribbed ; in certain other states they are apt to be short, straight and rather clubbed. Onychia (Greek, **onux,** " claw," " nail ") is a species of whitlow, sometimes affecting children. There is some degree of inflammation and matter forms under the nail, which may be pushed out of its bed and shed. Should the nail be cast, care must be taken, by the use of boracic lotion, to keep the raw surface clean, sweet and wholesome, pending healing.

NARCOTICS

(Greek, **narke,** " stupor ") are drugs the administration of which moderates the action of the nervous system. Opium and its derivatives form the chief narcotics and others include henbane, Indian hemp, aconite and tobacco. They are given for the purpose of inducing sleep or alleviating pain. Hence they are also known as soporifics and anodynes. This effect depends so much on constitution, age, idiosyncrasy and other particular attributes and is usually so fraught with danger, that they should only be employed medicinally and under the advice of the doctor. Tobacco, of course, occupies an exceptional position, but as to the rest it should be plainly said that it is almost fatal to acquire the narcotic habit.

NEURASTHENIA

Neurasthenia is a nervous disorder without any known alteration in the organic structure of the body, characterized by a continual state of extreme weakness and nervous prostration after the slightest exertion. There is usually considerable mental depression and inability or indisposition to perform any mental work. The weakness and fatigue are out of all proportion to any apparent cause. The symptoms indeed closely resemble those experienced during those of the early days of convalescence from an acute fever. In a large proportion of the cases there exists a curious headache, which is not so much painful as distressing, the sensation being one of pressure or fullness, so that the patients often complain that they cannot get rid of the feeling of a heavy weight on their head. The weakening of the nerve and muscular energy is of every degree of intensity. In its slighter forms it may consist merely of a sensation of tiredness after ordinary exertion, but may be insufficient to prevent the patient from attending to his ordinary business. In other cases the pain is so extreme that the patient feels unable even to raise himself on the elbow. Feeble digestion is the rule, sleeplessness also is extremely common. Neurasthenia is not a dangerous disease, and providing a suitable treatment be strictly enforced the majority of cases move steadily towards recovery. In the severe cases complete rest in bed for a few weeks, and isolation from sympathetic friends is essential. A very full nourishing diet, consisting largely of milk, should be compulsorily administered during this time. Afterwards steady and increasing outdoor exercise should be taken amid surroundings of interest, free from all worry and anxiety. Massage and cold spongings are valuable parts of the treatment throughout. The great hindrance to the successful treatment of neurasthenia usually consists in the patient's friends. They generally either believe the disease to be imaginary, and so increase the sufferings and distress of the patient, or on the other hand, they display a foolish sympathy which is no less harmful. Nothing, as Weir Mitchell has pointed out, is more curious, nothing more sad and pitiful, than these partnerships between the sick and selfish and the sound and over-loving. The first step needful is to break up the companionship, and to substitute the firm kindness of a well-trained hired nurse.

NEURITIS

Neuritis or inflammation of the nerve fibres may affect a single nerve or may involve a large number of nerves, in which case it is spoken of as multiple neuritis. This last condition is especially associated with chronic alcoholism, though it is not entirely traceable to that cause. It generally attacks persons in middle life. The onset of the disease is commonly acute. The body temperature rises to 103°, or even more. Tingling and numbness are experienced in the hands and feet, followed by severe burning pains in the limbs. Generally there is extreme tenderness in the muscles. Considerable muscular weakness follows, the first muscles to lose their power being those in the front of the leg and the back of the forearm. Dropping of the foot and of the wrist is the result. Generally the disease progresses for a month or so, then remains stationary for a couple of months, then, under suitable treatment, slowly improves. Should the muscles concerned in respiration become affected death frequently results, otherwise recovery is the rule. In the early stages complete rest in bed is essential, and hot fomentations may be applied to the painful limb. Alcohol should be completely barred from the first. After the acute inflammation has subsided massage is of the greatest importance in restoring the functions of the affected nerves and muscles.

In the case of localized neuritis, that is neuritis which affects a single nerve, the cause is generally either cold, or a wound, or the extension of inflammation from adjacent parts. In this form there are usually no constitutional symptoms, the principal symptom being a stabbing pain along the course of the nerve affected. The muscles to which the nerve fibres are distributed are also involved, and there may be more or less twitching and paralysis.

NERVES

From the various masses within the head, nine pairs of nerves proceed. From the spinal cord, or marrow, go thirty-one pairs. The nerves from the head pass out at various holes in the skull, those from the spinal cord pass between the vertebræ. The spinal cord is that portion of the cerebro-spinal axis which is contained in the spinal canal. It extends from the foramen magnum of the occipital bone to about the second lumbar vertebra, where it terminates in a slender filament of nervous matter called the *filum terminale*, which is continued onwards to the lower end of the sacral canal. The length of the spinal cord varies from fifteen to eighteen inches. It is closely invested by a very vascular membrane called the pia mater, while the canal in which it lies is lined by a strong fibrous membrane called the dura mater. There is a groove on the anterior aspect of the cord, dividing it nearly to its centre, and a similar groove on the posterior aspect. The former is called the anterior median fissure, the latter the posterior median fissure. Along each lateral aspect of the cord a series of nerves is given off. It consists of the spinal nerves, of which, as we have said, there are thirty-one pairs. Each nerve arises by two roots, anterior and posterior, so that the number of roots from each half of the cord is double that of the nerves.

The nerves of respiratory apparatus have their origin in the spinal cord, the medulla oblongata and brain, but chiefly in the first-named. The respiratory function, therefore, is chiefly of the reflex character and independent of the will—but not entirely; or it may be caused by the stimulus of the carbonic acid of the venous blood acting upon the filaments of nerves in the lungs going to the nervous centres, by the stimulus of cold affecting the nerves going from the surface of the body, by certain mental emotions and also by the will.

The nerves of the skin are a very important element and the abundance of their distribution may be judged by the pain caused by the pricking of a pin, or even the penetration of the minute sting of an insect. This very abundant nerve-supply of the skin, which is for the purpose of protecting us against injury, is accomplished by the most delicate division and distribution of the nerves, until their extremities are lost among the deeper cells of the epidermis. This kind of nerve gives ordinary sensations of pain, heat and cold, etc., but there is a somewhat different class or arrangement of nerves, whose function is to preside over the special sense of touch. These end differently: they enter the papillæ of the corium and appear to be wound up in a little knot. These little knot-like bodies are called tactile corpuscles, because the sense of touch is supposed to reside in them. They are always found on the palmar ends of the fingers and are most numerous there, but are present in a lesser degree over most of the surface.

One of the most important bearings nerves have on disease is that exercised through sensory nerves; these, whenever over-stimulated, it matters not by what means, give rise to a peculiar sensation called pain, and this pain, which is a purely nervous adjunct to most diseases, sometimes rises to the dignity of disease itself. But the pain thus experienced and referred to some particular part is not really felt there; it is felt in the brain; but the origin of the impression is ordinarily, but not always, referred to the diseased or injured spot. But this painful impression, in its turn, affects other parts; the nerves which rule the action of the heart are affected, and so that peculiar sickening feeling and palpitation, or tremulous action, of the heart is produced, which is commonly the result of great bodily pain. The sickness is referred to the stomach, the palpitation to the heart; but it is the same nerve which produces them both and the same stimulus which affects the nerve. The set of nerves which are known as vasomotor nerves run along the blood-vessels and with them penetrate into every part. The blood-vessels possess a distinct muscular coat, which is ruled by these nerves; insomuch that when the nerves are stimulated these muscular fibres contract and so diminish the calibre of the vessels and, consequently, the supply of blood sent to a part. On the other hand, when the power of these nervous cords is relaxed, the muscular coat of the vessels dilates and so their calibre is increased, thereby of course increasing the quantity of blood sent to a part. Some seek to account for the phenomena of inflammation in this way. Nervous influence has thus an intimate connexion with disease. No part or organ of the body can be isolated or considered apart from its neighbours; all are mutually dependent, so that when one is ill the others are sure not to be well. This is especially true of the nervous system. Sound health requires that it should be in a carefully-balanced condition, and any organ out of order is apt to give rise to this imperfectly balanced state of the nervous system. Say, for instance, that an individual suffers habitually from indigestion, so that his body is ill nourished, his brain will be so also. In him, comparatively slight causes will bring on nervous manifestations owing to this condition of his system; he may be impatient of slight sounds or garish colours; in point of fact, slight stimuli give rise to inadequate or disproportionate results. This is the condition which, in ordinary parlance, is called nervousness, or "nerves." Rest, quiet and good nourishment are the appropriate remedies.

NERVOUS DISORDER IN GENERAL

The chief causes of nervous debility are a sedentary or luxurious mode of living; extreme anxiety; severe and protracted application to business or literary pursuits; the excessive use of calomel or other mercurial preparations; costiveness and great disorder of the functions of the digestive organs and, indeed, whatever greatly enervates the general system.

Persons are frequently met with in a low, nervous condition, whose case requires the exercise of consideration and discernment in order to ascertain whether their malady be really nervous or the result of latent disease. A principal feature to be attended to is, that the purely nervous patient is always worse in the morning and gradually grows better as night approaches, being then more cheerful and more active and often able to sit up to a late hour with satisfaction and enjoyment. On the contrary, the person who is labouring under some concealed disease of a particular part is invariably more comfortable in the morning, but grows feverish, fatigued and restless towards night. It should be added, however, that when there is considerable muscular as well as nervous debility, arising, for instance, from simple disorder of the digestive functions, patients often grow fatigued and feverish towards night, although there may be no positive mischief in any part of the frame.

It is important to be able to perceive the indication of coming nerve-storm and so avert evil. The forewarnings of breakdown are sometimes very plain and sometimes so obscure as to be read only by the doctor. Excessive nervousness, or irritability, as every wife of a hard-driven brain-worker knows, is a very common result of over-work. Its meaning is that to the over-taxed nervous system the least discord or unnecessary effort is painful. It is often preservative of health, however, because it becomes so annoying to the man himself as to drive him to rest. What pain is to the broken limb, such is nervous irritability to the exhausted brain; by suffering, it forces the worker to let his nervous system rest. It rarely presages those serious disasters which come suddenly after a prolonged strain lasting for years. The dangerous brain condition is that in which the cerebrum has become so benumbed as not to feel the peril and demand a halt. Headache is another of those symptoms which force the attention of the brain-worker. The head is often the seat of unpleasant sensations which are not headache, but which, as the signs of mental over-driving, are of even more serious meaning than is headache. Such are a sense of weight on the top of the head, a feeling of constriction of the forehead, or a more general cephalic distress. Such phenomena, occurring after long-continued strain, are very significant and should always be heeded. Sleeplessness is a very common indication of over-work, which, when pronounced, demands medical advice. Of still more importance are the following manifestations and the only counsel we can give those who suffer from them is to seek at once the best medical attention: such as numbness in one or more of the extremities, permanent slight loss of control over some groups of muscles, momentary loss of consciousness, failure of memory, or loss of the power of fixing the attention. In some cases the forewarnings consist simply of temporary loss of power in the arms or legs.

The most important rules for brain-workers are the following:—
1. To avoid excitement and emotional disturbance as far as possible;
2. To take proper rest, that is

proportionate to the labour; 3. To keep in order the instruments with which the brain works; 4. To avoid unnecessary labour and worry; 5. To avoid overtaxing the immature brain.

Palsy, epilepsy and several other complaints are, in the majority of instances, strictly nervous maladies; but being determinate forms of diseases are separately noticed. What we refer to here is a general weakness and derangement of the nerves, the symptoms of which are well known to most people. They are, depression of spirits, timidity, and irresolution, general irritability and restlessness—accompanied frequently with such an uncomfortable state of feeling as is more easily conceived than described; often pains in the head and shooting pains in various parts of the body, restless nights and general languor and debility.

Perhaps the most common causes of general nervousness are costiveness and a deficiency of active exercise in the open air of the country. Therefore, the two principal points of attention are the proper regulation of the bowels, so that they may be exonerated daily without irritation, and the quitting of sedentary habits and a crowded city for active exercise in the country. Constipation must be systematically attacked and the bowels brought into regular working order, they should be moved at least once a day, generally as nearly as possible about the same hour. Daily friction with the flesh-brush over the region of the stomach and bowels and all the large joints, and early rising, must make a part of the general plan. The friction must be performed by the patient himself. The diet should be nourishing and easy of digestion and warm rooms, hot beds and everything which is relaxing must be studiously avoided.

The circulation of the blood is greatly influenced by the nervous system. Almost all of us have experienced that palpitation or jumping of the heart when we have been startled or frightened. The blood-vessels and the heart are connected by nerves with the brain and spinal marrow. The small arteries throughout the body possess a muscular coat, which, by contracting, is able to diminish the capacity of the arterial tube. Now, connected with the muscular coat of each artery are numerous nerves, whose duty it is to regulate the calibre of these vessels; the result being that the nervous system is able to control the circulation of the blood in various parts. As an example, take the act of blushing; it is a purely local affection. How is it caused? An emotion, sometimes pleasurable, sometimes painful, takes possession of the mind. Thereupon a hot flush is felt; the skin of the face grows red. The face becomes hot and red because the blood-vessels contain an increased quantity of the red and hot fluid. Its vessels contain this increased quantity of blood because the small arteries suddenly dilate; the contractile power of the arteries being lost for a time, owing to the nerves which control the contraction being affected by a mental emotion.

NERVOUS SYSTEM

Wherever a nervous system exists it is always found to consist of two parts, one of them white and opaque in appearance and, when examined under the microscope, presenting a tubular or fibrous structure; the other of a reddish grey colour and made up of cells or vesicles filled with granular matter. It appears as if these two forms of nervous substance must be present to secure the successful working, so to speak, of the apparatus. In the large nervous masses, such as that of the brain, the distinction is very marked, as any one may see who will take the trouble to examine the head of a sheep. The larger proportion of the brain, spinal marrow, and nerves is composed of the opaque white matter; the grey is more sparingly distributed and is evidently the apparatus in which the nerve force is generated, the tubular substance acting the part of the conductor. This is more easily seen when the latter is thrown into the form of the nerves, or cords of nervous matter, which are distributed throughout the body. These nerves, at their origin, are connected with the grey substance, with the vesicles of which we find their intermingling occurs, an enlargement, or, as it is called, a "ganglion," is formed. In the lower orders of animals, in which the nervous system is simple, in a degree harmonizing with the simplicity of their structure, these "ganglia," resembling knots upon the nerves, are all they possess by way of a brain, but as we ascend the scale towards man, we find that the nervous system becomes more and more highly developed and that the nerve substances are collected or aggregated into masses which are carefully protected from all external injury, and from which the nervous cords, or conductors, or, as they are usually called, "nerves," proceed to all parts of the body, each being enclosed within its own proper sheath, and dividing and subdividing, to be distributed to every portion of the frame, although to some, such as the ends of the fingers and the lips, their branches are more liberally allotted than to others. In the case of man, the great nerve masses are divided into the brain, or cerebrum; the little brain, or cerebellum, the medulla oblongata, and the ganglia of the special senses. These parts are all packed within and protected by the hard, bony skull. Continued from the medulla oblongata there is the spinal cord or marrow, which has its own special canal carried through the bodies of the vertebræ of the spine and thus is very carefully protected.

NETTLE-RASH. *See* URTICARIA.

NEURALGIA

This is a term given to pains sometimes following the tracks of nerves, sometimes lying apart from them, which cannot be referred to any distinct morbid change going on in the part. Nevertheless, though there may be nothing in the spot to account for the pain, this may be of the severest possible character and we are fain, for want of a better causation, to refer it to the nerves of the part. Now, nerves, when cut, are not more painful than other parts. There is absolutely no pain experienced in slicing the brain; inflammation in the tendons, ligaments and the like, where there are few or no nerves, is intensely painful. Sometimes, however, pressure on a nerve will give rise to pain in distant parts of a most intolerable character. Such is seen in aneurysms of internal vessels pressing upon nerves and giving rise to severe neuralgia. But in ordinary neuralgia we have nothing of the kind; we have only most intolerable pain and no apparent cause for it. In point of fact, whenever we see pain long continued and aggravated and at the same time we can make out no definite cause for the pain, we term it neuralgia. Neuralgia, strictly speaking, however, ought to be restricted to pain in the course of nerves, and some nerves are affected much more frequently than others. Thus, neuralgia of the nerves which gives the face sensation is by no means infrequent ; it is most commonly called tic-douloureux. Sometimes the head on one side may be affected ; or the sciatic nerve may be its subject, giving rise to the condition called sciatica. But internal organs may be affected in like manner, so that we may have neuralgic pain of the heart, stomach, or intestines, still more frequently of the womb, the bladder, or the rectum —pain not due, that is, to any inflammatory or other local change, but merely, as far as we can see, to irritation of the nervous filament supplied to the parts. Neuralgic attacks commonly affect one side only and they are often attended by or end in attacks of nausea and violent vomiting. The pain varies in severity from a slight twinge now and again, to unbearable agony. Not infrequently this pain becomes periodic in its onset, appearing at certain hours of the day and departing at others—thus simulating the effects of malaria. Whether such periodic neuralgia is really produced by malaria is not plain, though cold and damp do exercise a powerful influence.

NEURALGIA, CAUSES OF

Certain forms of neuralgia appear to be associated with anæmia and a goodly number with imperfect digestion, so that very often bad teeth and consequent imperfect mastication of the food setting up dyspepsia work together in producing faceache. Undoubtedly bad teeth are one of the most prominent causes of faceache and neuralgia. Exposure to a draught of cold air falling on the side of the face is not an uncommon cause of neuralgia. This, perhaps, most ordinarily occurs in crowded halls or assemblies, where a window or door has been partially opened for ventilation, or when driving home in a carriage with the windows open, or the like. These causes are all the more likely to set the pain agoing if any such permanent irritation to the gum as bad teeth exist, or if the patient is liable to attacks of neuralgia of the face. The pain will generally prevent sleep, but once the patient has fallen asleep, he may rest soundly, for the pain no longer torments him.

NEURALGIA, TREATMENT OF

One thing to be noted with regard to all neuralgic attacks is that they are most frequently brought on by fatigue, mental or bodily ; or, if not thus produced, are most readily caused in subjects who have been exposed to one form or other of fatigue, or are suffering from the weakness produced by it. This is a most important indication in the treatment ; indeed, it may be said to be a basis. Rest and nourishment—nourishment and rest are the foundations of our means of dealing with neuralgia. Nourishment may be taken with tolerable ease. But in certain cases where there are sickness and vomiting there may be some trouble to improve the general condition. This form of neuralgia is often associated with bad teeth, and these must promptly be removed. Frequently after this is done, nothing except tonics is required. Rest is all-important, but rest is not always attainable without something being done for the patient. When the pain is very severe, the best thing that can be done after having had the bowels well cleared out (this in all cases is an indispensable preliminary) is to give the patient one-fifth of a grain of morphia acetate under the skin of the arm. This will relieve the pain and procure rest, so much needed. Many, indeed, look upon this as being the treatment in all instances, but its true value consists in procuring rest and so allowing time for recuperation. For opening the bowels in the first instance, saline purgatives are perhaps best, but they may not act sufficiently powerfully, and so calomel or even croton oil may be required : best of all are the repeated doses of a laxative mineral water. Aloes, especially as watery extract, is a good preparation, particularly in sciatica, where there is a suspicion that the cause of the malady is over-distended bowels. In most cases iron and cod-liver oil are essential. Iron is best given in some mild form, as carbonate, or as reduced iron, or as peroxide. Cod-liver oil is best given just after food ; iron along with food. In reality they are both forms of food rather than of medicine. If the malady is periodic, as it often is, whether this depends on malaria or no, quinine had better be given at first in full doses (five grains or so), afterwards in small quantities, say five grains of the citrate of iron and quinine three times a day. If there is indigestion, that, too, must be seen to, rhubarb and soda, or potass, being usually the best remedies. In all cases of neuralgia produced by local causes it will disappear with the removal of the cause and will not disappear until the cause be removed. Thus it is utterly useless to apply soothing remedies, ointments, lotions, or what not, for neuralgia dependent on a bad tooth or a diseased jaw. Once this is seen to, the neuralgia will go.

NEURALGIA IN AUDITORY CANAL

Neuralgia in the auditory canal is classed with earache and often falls under the domestic treatment for this complaint. Its cause is almost invariably decayed or improperly-filled teeth. A singular feature of this disease is that very often the tooth which causes the pain in the ear is not painful itself or even tender to the touch. Of course, where toothache exists and seems to dart into the ear, the patient is often led very improperly to consider the tooth as the real cause of the earache. There is no discharge in these cases—at least, not at first ; and there is no attendant deafness, nor are there noises in the ear and head. When, therefore, a severe pain sets in, in the ear, without any other symptom in the ear, the patient should conclude that his ear is neuralgic by reflection, as it may be termed, from the decayed or otherwise diseased tooth. An examination of the mouth in such cases will generally reveal at least a hollow tooth, or a tender one on the same side as the aching ear. Too frequently, however, the neuralgia is mistaken for inflammation in the ear and improper remedies of all kinds, hot oils, fats, various kinds of vegetable matter, etc., are put in. These irritate the ear and finally, in addition to the neuralgia, there is an inflammation, with discharge from the ear. The only cure for neuralgia in the auditory canal, or in the ear, is the treatment or extraction of the offending tooth. In this instance the pain with disappear on the cure or removal of the diseased tooth.

NIGHT TERRORS

are most common in children between the ages of three and eight years. In its general symptoms the seizure resembles a very severe nightmare: the child wakes screaming, and is either found sitting up in bed, crouched in a corner of the bed, or room, or he will rush out of the bedroom and fly to the nearest person. His face is set and terror-stricken, and his eyes staring, and he often cries that he sees frightful apparitions which follow or threaten him. In bad cases the child cannot recognize even the most familiar faces, and clings blindly to the first comer, but after an interval varying from a few minutes to half an hour he begins to recognize his surroundings, and to notice people that he knows. He shows all the signs of extreme exhaustion, and his face and body are wet with sweat. When he at last falls asleep again it is to start and mutter, and he will beg not to be left alone. Frequently a large quantity of urine is passed either during or just after the attack. A curious thing about the attacks is that they occur while the child is in perfect health, a fact which differentiates it from nightmare, which is generally associated with ill-health and digestive disturbance. In the case of Night Terrors there is generally a family history of hysteria, chorea, or epilepsy, though this is not invariable. It is as well, before attributing the attack to brain disturbance, to try the effect of a dose of calomel, as constipation seems frequently to be the cause of slight attacks. Care should be taken that the child is not left to sleep in the dark or alone, for a light burning brightly in the room and a familiar face meeting the child's eye at once on waking will do much towards breaking the spell and allaying its fears. Harshness in such cases is quite out of place.

NIPPLES, EXCORIATED OR SORE

This troublesome and painful affection in almost all instances is met with during suckling, usually of the first child, and is due to irritation and ulceration of the delicate skin of the nipple. The mother first notices one or more deep cracks, which are extremely tender and bleed when touched. The skin around these cracks, fretted by the suction of the child's mouth and constantly bathed by milk and discharge, becomes inflamed and raw. In debilitated and unhealthy women, the inflammatory mischief extends deeply into the tissues of the affected nipple and also to the skin covering the breast. When the nipple has become so tender that the mother is compelled to suckle the child almost entirely on the opposite and healthy side, the breast corresponding to the excoriated nipple is engorged with milk and finally attacked with acute inflammation, which results in the development of a large mammary abscess. The usual cause of sore nipples is the disregard of cleanliness and neglect on the part of the mother to keep the surfaces of the nipples dry. The tender cuticle covering these structures is readily excoriated by the contact of fluids and the friction of moist and dirty linen. In most cases the affection is produced by the suckling of the first child and never occurs again; but some mothers, in spite of their careful preparation of the nipples before lactation and constant attention to these parts after the birth of the child, are troubled with painful cracks and all the inconveniences to which these give rise during every period of lactation. Some mothers suffer from sore nipples in consequence of their allowing the child to retain the nipple in its mouth for too long a time. It is very probable that a diseased condition of the child's mouth may also be a cause of this irritation. In order to prevent sore nipples, the delicate skin should be hardened by the frequent application of diluted spirits of wine, weak lead lotion, or a lotion containing one drachm of alum to half a pint of water. A strong infusion of green tea, with the addition of about one-fourth of brandy or gin, will also be found a good astringent wash. The use of the lotion should be begun early in the seventh month and the nipples should be bathed night and morning. A bottle with the mouth and neck just large enough to admit the nipple should be half filled with the astringent lotion and then be applied over the nipple and inverted, so that the lotion may fall down upon this organ and bathe it at every part of its surface. During suckling the nipples should be kept as dry as possible and, when not used, be covered by cotton-wool, dusted with lycopodium or starch. When ulcers and cracks heal and there is no inflammation of the surrounding skin, the nipples should be lightly touched with a pointed crystal of blue-stone, but when the nipple is hot and tender, the application of caustic must be deferred until the irritation has been allayed by warm fomentations. When a considerable extent of skin both of the nipple and on the breast is red, raw and moist, the best local application will be a solution of five grains of lunar caustic in one ounce of water. This should be brushed over the affected parts every morning. After the application of any active or caustic agent to the nipple, the mother must take care to keep the child from the breast until all traces of the local remedy have disappeared.

NITRE GARGLE. *See* Gargles.

NITRE, SWEET SPIRIT OF

See Medicines, Home.

NOSE, BLEEDING FROM THE

When this is slight, it probably is symptomatic of nothing and will cease of itself. If it be severer, the old-fashioned remedy of slipping a cold key down the back may be tried. Cold water or ice may be applied to the nose and forehead, or a piece of ice inserted in the bleeding nostril, the sufferer sitting quiet, with his arms raised above his head for a few minutes. Should the bleeding prove more obstinate, the doctor had better be summoned. Those who are liable to this weakness should avoid intoxicants, take exercise in strict moderation, refrain from stooping and be temperate in all things. The bleeding sometimes seen in the anæmic should be treated in connexion with the main disease.

NOSE, FOREIGN BODIES OF

The patient should take a full breath through the mouth, which, with the uninjured nostril, should then be held tight and the patient told to breathe hard through the nose, a slap on the back being given at the same time. If this does not answer and the obstruction is near the nostril, hold the nose over the object and hook the latter out with a bent hair-pin, or else take the patient to a doctor.

NOSE, THE ORGAN OF SMELL

The organ of smell is so placed above the mouth that, by it, the odour of whatever is put into the mouth must be immediately perceived—a very convenient arrangement. The visible portion of the nose is chiefly made up of bone at the upper part, or bridge as it is called, and of cartilage at the expanding nostrils. The internal portion of the organ communicates with the throat and consists of a cavity formed in the bones, which are expanded in such a manner as to offer a wide extent of the membrane, on which the nerves of smell are distributed, to the action of the air bearing the odoriferous particles.

NOTIFICATION

of infectious diseases is compulsory in London and elsewhere upon every medical practitioner called in to visit a patient suffering from any of them. The diseases are smallpox, cholera, diphtheria, membranous croup (to ensure the complete reporting of diphtheritic cases), erysipelas, scarlet fever, typhus, enteric fever, relapsing fever, continued fever (to cover obscure forms of fever which might be serious and yet otherwise escape attention) and puerperal fever. Other diseases may be added to this list temporarily. The doctor must report every such case immediately to the district Medical Officer of Health and the householder also is required to notify the fact of the outbreak. Every structure used for human habitation is within the purview of the statute, that is to say, ships, vessels, boats, tents, vans, sheds and the like, besides houses, excepting hospitals for infectious diseases. The object of these powers is to give opportunity for the instant isolation of cases of infectious disease of a serious nature, with a view to averting epidemics.

NURSE, THE

The qualifications of a nurse deserve and admit of a more definite arrangement than is generally given them. At least there is one that should always be placed first as the most essential and the foundation of all, namely, a love for the work, a devotion to it for its own sake. That must underlie, as it will embody, all the others. There may possibly be exceptions to this rule; but certainly, if your love for the work comes tardily, so will your success, and this will never come if that is altogether wanting. Understood in the proper sense, devotion to your work implies what is in itself another qualification of a nurse—a kind and loving heart. Many occupations can be carried on independently of such a gift, but not that of a nurse. That will shorten the weary hours of watching, lighten duties in themselves unpleasant and make you bear with patience the fickle temper, or it may be the ungrateful heart. Expressing itself on your countenance, it will be reflected on and caught up by those about you. It will quicken your ear to the cry of want or pain; it will lighten your footstep, and soften your touch. This word "touch" brings us to another essential qualification, namely, tact. It is a quality not easily defined; but if we go back to its original meaning, we can construct a definition upon it. It means, literally, touch—the touch of skill and experience. But it has a wider significance—it includes the mental touch—something more complete than the other; not a touch merely, but a grasp—the grasp of the situation, the comprehension of a difficulty, the grasping of it on all sides so that it disappears in your hands. This is tact and by it alone will you be able to meet the ever-recurring and ever-varying emergencies that beset your work. Patience, another important qualification is, indeed, a virtue in a nurse. It will, doubtless, be the result of that devotion to your work to which I have referred ; but often it will be sorely tried, even if you possess it as a special gift. In convalescence particularly, when the patient feels his weakness and is more alive to the monotony of day succeeding day, is this most likely to be the case. When your ingenuity well-nigh fails you in providing some new entertainment for him, then comes the test of your patience. As to whatmay be termed the habits of a nurse, I would mention order first of all. That is simply having a place for everything and everything in its place. There is no habit of more extended advantage to you than this. It is a great part of neatness and, like it, looks well ; but, what is of far greater importance, it enables you to act well. It may prevent many a serious error or, it may be, a dangerous delay. Punctuality is such another habit. If you delay the giving of a meal, then, when it is ready, the patient's appetite may be gone and that means strength gone and time lost.

NURSING

It is part of every mother's duty to bring up her child at the breast, unless there are good and sufficient reasons to prevent her from doing so. The only consideration that ought to weigh with her should be the welfare of her child ; and if she enter upon her duties with the notion that she may continue them or give them up just as it may prove convenient to her, or with the intention of only giving her child the breast at such times as she may find it suitable, without interfering with her pleasure or pastimes, she had better not undertake the duty at all. Many women are not sufficiently alive to their duty in this respect. They either fail to perceive the evident design of Nature in regard to it, or wilfully close their eyes to the fact.

NURSING, FIRST STAGE

With reference to nursing during the first few days, it is frequently noticed in those who have already borne children that towards the close of pregnancy the breasts begin to enlarge very considerably, become swollen and often contain milk. Usually, however, the milk does not make its appearance till the second or third day, especially in first cases. Its appearance in the breasts generally gives rise to some constitutional disturbance, causing slight chills, feverishness, etc., which symptoms, however, speedily pass off. The breasts enlarge and become knotty to the feel and blue veins are seen to traverse the surface. The nipples become erect and pain and uneasiness are experienced by the mother, the pain sometimes passing up towards the armpits. All these uncomfortable symptoms speedily pass away on the milk, which is secreted, being drawn off by the child. The first milk which is secreted is darker than that which follows it. In colour it is yellowish. It is called colostrum and is supposed to have a purgative effect upon the child. In the case of those who have not already borne children and those in whose breasts the milk has not begun to be secreted towards the close of pregnancy, it would be unwise to put the child too often to the breast, because if it is frequently put to the breast and receives nothing, the child at last grows disappointed and may afterwards refuse to take the breast at all. In attending to this, however, the opposite extreme of not putting the infant to the breast even once during the first day or two, must be avoided, inasmuch as the occasional application of the child to the breast exercises a stimulating influence upon it and by increasing the quantity of blood which flows to it, tends to hasten the "draught," as the secretion of milk in quantity by the breast is called. In the case of those, then, who have not borne children already and in those in whom the milk has not yet made its appearance in the breasts, the child should be applied not more frequently than once every six hours and, in order to satisfy its hunger till the milk appear, a little ass's milk may be given it ; or, what is of more general employment, because more within the reach of all, a little cow's milk, diluted with boiling water and slightly sweetened with sugar.

NURSING, SECOND STAGE

In nursing during the first month when the milk has come to the breasts, all artificial nourishment must cease and the child be put to the breast regularly. It is now that so many mistakes are made and so many bad habits are formed ; now that the health of the child frequently begins to suffer and derangements of the stomach are so often met with. When the first few days of the infant's life are over, regularity in feeding must be observed, otherwise the health of both parent and child will suffer. The child should be put to the breast during the first month once every two hours during the day and once every three or four hours during the night. To attend to this from the very first is absolutely necessary, as a mother's rest should be as undisturbed as possible. When this is neglected and her nights are disturbed, her health will become impaired ; the milk will deteriorate in quality and the child will be badly nourished and suffer in consequence. The best time to give the child the breast is when it awakes out of sleep and, on its hunger being appeased, it will generally fall asleep again without further trouble. The practice which some have of allowing the child to fall asleep with the nipple in its mouth before putting it into his cot is one to be avoided. A practice of this kind very soon becomes a habit with the child and the mother herself may be astonished to find how great a hold it has taken upon it and how difficult is the task, even in a short time, of getting the child to fall asleep without the nipple in its mouth.

NURSING, THIRD STAGE

With regard to nursing from the first month till the appearance of the teeth, the regularity in nursing which was necessary during the first month must be maintained in all its strictness. The frequency, however, with which the child is fed need not now be so great. During the day the breast should not be given more frequently than once every two and a half or three hours and during the night it should not be given oftener than once every three or four hours. As the child grows older, the time which is allowed to intervene between each meal should be increased. If these directions are attended to, the child will sleep four or five hours without awaking and the mother will thus be enabled to obtain wholesome and undisturbed sleep, but if, instead, her nights are broken, she will speedily suffer in health. Till the appearance of the first, or milk teeth, the child should be fed exclusively at the breast ; after that, which is Nature's indication that the stomach has become fit to digest other substances, the child may be given rusks, tops and bottoms, or a little of one of the many well-accredited infants' foods, which the doctor will (if asked) specify. Should it happen that the food chosen does not agree with the child, another must be tried ; but when the proper food has been discovered it should be regularly administered. Never trifle with the digestive apparatus even of a baby, for one never knows what lifelong mischief may result from "experimenting" in this respect.

NUTRITIVE VALUE OF FOODS

Dr. Letheby's table of the nutritive value of foods will be found useful in selecting the best kinds of food in various circumstances.

SUBSTANCES, 100 parts	Water	Fibrine, Albumen, etc.	Starch, Sugar, etc.	Fat	Salts	Carboniferous	Nitrogenous	Total Nutriment
Human Milk . .	89	3·5	4·2	3·0	0·2	11·4	3·5	14·9
Cow's Milk . . .	86	4·5	5·0	4·1	0·7	14·8	4·5	19·3
Skimmed Milk . .	87	4·5	5·0	2·7	0·7	11·5	4·5	16·0
Butter Milk . . .	87	4·5	5·0	0·5	0·7	6·0	4·5	10·5
Beef and Mutton .	73	19·0	—	5·0	2·0	12·0	19·0	31·0
Veal	77	19·0	—	1·0	0·6	2·4	19·0	221·4
Poultry	74	21·0	—	3·0	1·2	7·2	21·0	8·2
Bacon	20	0·8	—	70·0	1·3	168·0	0·8	168·8
Cheese (Cheddar) . .	36	29·0	—	30·0	4·5	72·0	29·0	101·0
,, (Skimmed) .	44	45·0	—	6·0	5·0	14·4	45·0	69·4
Butter	15	—	—	83·0	2·0	199·0	—	199·0
Eggs	74	14·0	—	10·5	1·5	25·0	14·0	39·0
White of Egg . . .	78	20·0	—	—	1·6	—	20·0	20·0
Yolk of Egg . . .	52	16·0	—	30·0	1·3	72·0	16·0	88·0
White Fish . . .	78	18·0	—	3·0	1·2	2·4	19·0	21·4
Salmon	78	17·0	—	4·0	1·4	9·6	17·0	26·6
Eel	80	10·0	—	8·0	1·3	19·2	10·0	29·2
Wheat Flour . . .	15	11·0	70·0	2·0	1·7	74·8	11·0	85·8
Barleymeal . . .	15	10·0	70·0	2·4	2·0	75·8	10·0	85·8
Oatmeal	15	12·6	62·0	6·0	3·0	76·4	12·0	88·4
Ryemeal	15	9·0	66·0	2·0	1·8	70·8	9·0	79·8
Indian meal . . .	14	9·0	65·0	8·0	1·7	84·2	9·0	93·2
Rice	14	7·0	76·0	0·3	0·3	76·7	7·0	83·7
Haricot	19	23·0	45·0	3·0	3·6	52·2	23·0	75·2
Peas	13	22·0	58·0	2·0	3·0	62·8	22·0	84·8
Beans	14	24·0	44·0	1·4	3·6	47·4	24·0	71·4
Lentils	14	29·0	44·0	1·5	2·3	47·6	29·0	76·6
Wheat Bread . . .	44	9·0	49·0	1·0	2·3	51·4	9·0	60·4
Rye Bread . . .	48	5·0	46·0	1·0	1·4	48·4	5·3	53·7
Potatoes	74	2·0	23·0	0·2	0·7	23·5	2·0	25·5
Green Vegetables . .	86	2·0	4·0	0·5	0·7	5·0	2·0	7·0
Arrowroot	18	—	82·0	—	—	82·0	—	82·0

In this table the carboniferous matter is calculated as starch ; 10 of fat being equal to 24 of starch.

OAK BARK, DECOCTION OF

See DECOCTIONS.

OATMEAL

Oatmeal deserves to be much more used than it is in the form of porridge. This is made by gradually stirring oatmeal into boiling water, until enough has been added to give the required degree of consistency—continuing the boiling for at least half an hour, until the meal is sufficiently cooked. It is commonly eaten with milk ; sugar should only be used in the event of the porridge being insufficiently salted. This is usually a very unirritating kind of food, an article of diet which is well adapted to the case of children and little less so to that of dyspeptics ; and for the labouring population it forms a breakfast that is much more nourishing and more wholesome than tea and bread and butter. Bread and milk, although certainly well suited to the stomachs of most children, are nevertheless found to disagree with some and, as a general breakfast for children, oatmeal porridge and milk are preferable. It is an unstimulating diet, very easily digested, contains a very considerable proportion of nutriment and seems usually to act slightly on the alvine excretions—while in many cases a continued use of milk renders it necessary to take an occasional dose of aperient medicine. A fresh sample of Scots oatmeal, on analysis, exhibited the following result :—

	In 100 parts.	In 1 lb.	
		oz.	grs.
Water	5·0	0	352
Fibrine, etc.	16·3	2	252
Starch, etc.	63·0	10	351
Fat	10·1	1	268
Cellulose and lignose	3·4	0	259
Mineral matter	2·2	0	147

OATMEAL GRUEL

Take two or three tablespoonfuls of oatmeal and rub it in a basin with a little cold water. Repeat the process, each time adding fresh water, until all milkiness ceases to be communicated to the water. Put now the washings into a pan and boil till a thick mucilage is formed. This gruel contains more nourishment than sago, arrowroot, tapioca, etc., as they contain, besides starch, a small quantity of gluten. Sweeten to taste and mix with milk if preferred. Butter and honey are sometimes added, but, as these are apt to derange the stomach, they had better be done without. Besides being used as an article of diet, gruel is frequently employed as a vehicle in which to administer substances given in the form of clyster.

ŒDEMA

See DROPSY.

ŒSOPHAGUS

(Greek, **oio**, "I bear" or "carry," and **phago**, "I eat").

The œsophagus, or meat-pipe, about nine inches in length, is the tube down which the food passes from the pharnyx to the stomach. When food passes from the throat into the gullet, it is carried by the wave-like action of that tube into the stomach. Some may think this a mere mechanical action, but it is not so ; that is, the food does not drop into the stomach as it might into a bag by means of its own weight, but is conveyed thither by the muscular movements of the œsophagus or gullet, by the same power by which water is carried upwards through the gullet of the drinking cow or horse.

OINTMENTS

These are forms of remedies in

which the active substance is wrought up with lard, or some similar fatty substance, which, being smeared on the skin or raw surface, keeps the part moist and prevents evaporation. Formerly a distinct kind of ointment, called cerate, was employed ; in this a considerable quantity of wax was mixed up with the other ingredients so that its substance was harder and firmer than that of ordinary ointments. The name is now done away with, but the substance remains, for a good many of the ordinary ointments contain wax and are essentially cerates. Ointments have been long in favour as applications to wounded surfaces, and in many cases do well. In certain instances, however, especially when the discharges tend to decompose, they do harm ; the fats break up and the fatty acids are set free and so the application becomes a curse rather than a blessing. The same untoward results follow the use of a single application of ointment too long.

1. *Ointment of Galls.*—Take of galls in fine powder, eighty grains : benzoated lard, an ounce ; mix ; or take of galls in fine powder, two drachms ; camphor, half a drachm ; lard, an ounce ; mix. Either of these ointments will be found useful as an external application to piles when the inflammatory stage has subsided. When the pain is severe, the addition of a little powdered opium will render this ointment more efficacious.

2. *Oxide of Zinc Ointment.*—Take of oxide of zinc, two drachms and two scruples, benzoated lard, two ounces. Add the oxide of zinc to the benzoated lard, previously melted with a gentle heat, and stir the mixture constantly while it cools. The vaseline ointment of zinc has fine healing qualities. This ointment is very useful in many skin diseases, particularly eczema, and also in sore nipples, excoriations and bedsores.

3. *Saturnine Ointment.*—Take of acetate of lead in powder, two drachms ; white wax, two ounces ; olive oil, half a pint. Melt the wax in seven fluid ounces of the oil, then add gradually the acetate of lead separately, rubbed down with the remaining oil and stir with a wooden spatula until they be thoroughly incorporated. This is an excellent cooling cerate for burns, excoriations and other inflamed sores. Renew night and morning.

4. *Sulphur Ointment.*—Take of sublimated sulphur, three ounces ; perfumed lard, half a pound ; essential oil of bergamot, twenty drops ; mix. This is a specific for itch. Rub on the body every night till the disease is cured.

5. *Turner's Cerate.*—Take of prepared calamine, yellow wax, of each two ounces ; olive oil, five ounces. Mix the oil with the melted wax ; then remove the mixture from the fire and, as soon as it begins to thicken, add the calamine, stirring constantly until it is cold. This is a cooling, drying cerate, very useful in excoriations, simple ulcers and burns after the inflammation is abated.

OLD SIGHT

See PRESBYOPIA.

OLD SIGHT, GLASSES FOR

See SPECTACLES.

OLEAGINOUS FOODS

Oleaginous foods are those which consist principally of oils, butter, fats, or lards. These foods are not generally eaten alone, but are added to starchy diets. The action of oils on the system is principally to maintain animal heat and force and practically they are most largely eaten by those who do the largest amount of work. They also assist in the digestion and assimilation of other foods. It is on this account that cod-liver oil, pancreatic emulsion and butter, cream and fat, have been recommended as articles of diet in cases of consumption, scrofula and other wasting diseases of the body.

OPHTHALMIA, CATARRHAL

(Greek, **ophthalmos**, "eye").

The most common disease of the eye is inflammation of the conjunctiva. Its simplest form is the catarrhal, in which the mucous membrane of the eye is affected in the same way as that of the throat and nose and often at the same time. As the membrane is continuous with that of the nose and throat, its diseases may be so too, as in the case of influenza. It usually yields readily to rest and simple treatment, but if not checked may run into the purulent form, or become chronic and end in the condition known as granular lids. The latter is a very tedious and obstinate complaint and is well known and much dreaded by patients who frequent hospitals and dispensaries.

OPHTHALMIA, PURULENT

Purulent ophthalmia differs from catarrhal ophthalmia, principally in degree and it is sometimes difficult to tell where the one ends and the other begins. The discharge, which is thick and yellowish and, in bad cases, very copious, is virulently contagious. Whole families are sometimes inoculated by the discharge from the eyes of an infant which has had the disease so slightly as scarcely to attract attention. It is not common among adults who live in clean and roomy houses, with comfortable surroundings, but is met with often enough in very young infants. It is most frequent where a number of people are crowded together, as in barracks, asylums, charity schools, etc. This disease is sometimes called Egyptian ophthalmia, from its great frequency in Egypt, where it prevails to such an extent as to assume the proportions of a scourge and the number and wretchedness of its victims sadden the journey of sympathetic travellers. Its causes are exposure to intense heat and glare, the high winds driving clouds of sand before them, and the poverty and ignorance of a large portion of the inhabitants. Many soldiers of the Crusades were victims of this disease, and numbers of blind beggars groped about the streets of London and Paris, appealing to the sympathies of the passers-by with the cry of "Holy Land!" "Holy Land!" to show that they had lost their sight in the popular cause. Three hundred of these persons were cared for in an asylum established in Paris in 1260 by Louis IX, which, from the number of its inmates, was called "Les Quinze Vingts." It is still in existence, and is the oldest institution for the blind in the world. Purulent ophthalmia is one of the most dangerous diseases to which the eye is subject and its victims are the most numerous in asylums for the blind. Fortunately, in a large proportion of cases, it yields to proper treatment, particularly the form occurring in infants, which is nearly always curable in its earliest stages; but no time should be lost in calling in the doctor, as, in a bad case, a few hours sometimes decide the patient's fate. The most scrupulous cleanliness is always essential and the greatest care must be taken that no towel or basin that the patient uses shall be used by any one else. When the disease appears in a building where a number of persons are congregated, every one attacked should be immediately isolated. The question is frequently asked, Whether it is better to bathe the eyes in cold or warm water ? So far as external bathing is concerned, this is merely a question of comfort and may be decided by the experience of the individual ; but it is not well to apply anything to the conjunctiva unless this is inflamed. Many people have an idea that it strengthens the eyes to open them under water ; but though the eye may be able to bear this exposure to an unnatural element, it certainly cannot suffer from the want of it. Healthy eyes, if given anything like a fair chance, will take care of themselves and need no attention beyond what may be necessary to avoid abusing them.

OPHTHALMIA, SYMPATHETIC

When the eye is extensively lacerated by a wound, or when a foreign body is lodged in the ball, the effect is not always confined to the injured eye, but there is great danger of the other being lost by sympathetic inflammation. In nearly all such cases the only safety from ultimate blindness is in the removal of the offending eye, which is no longer either useful or ornamental, but has become merely a dangerous deformity and sooner or later, sometimes after many years, is pretty sure to give trouble. Fortunately, the operation for the removal of a disorganized eye is not a serious one and the resulting disfigurement can, to a great extent, be concealed by the use of an artificial eye. Such perfection has been reached in the manufacture of artificial eyes that close examination is often needed to distinguish them from the natural organ. They are thin shells, the edges of which fit into the folds of the conjunctiva, and are held in place by the lids. One should never be worn more than two or three years, as, when the enamel is eroded by the tears and mucus, it loses the perfect smoothness of its surface and becomes a source of irritation.

OPIUM

From a very early date people have been familiar with the use of the common white poppy to soothe pain and give sleep. In the United Kingdom the poppy is chiefly employed as a medicine, but in the East it is much in request as a narcotic. The essential and primary action of the drug is upon the nervous system and the ordinary results of this action, when a moderate dose is taken, are that the mind is exhilarated, the ideas flow more quickly and a pleasurable or comfortable condition of the whole system is experienced which it is difficult to describe. Opium possesses, moreover, an extraordinary power of sustaining the strength and by its means men are enabled to undergo fatigue and continued exertion under which they would otherwise sink. Those persons who, through irritability of temperament and proneness to despondency, betake themselves to the dreadful practice of opium-eating, suffer severely in the sequel for the transitory pleasure derived from it. The habit induces constitutional debility, loss of memory and appetite, early decrepitude and shortness of life. The person is characterized by a listless, dull manner and an unconquerable aversion from any exertion of mind or body. While not under the influence of the spell, his despondency amounts to an indescribable horror of mind. All his movements are embarrassed by a universal tremor of the limbs ; he becomes paralytic, perhaps apoplectic, and expires in a fit. The habitual use of opium induces nearly a similar train of disease to that accompanying the inveterate habit of drinking ardent spirits. An over-dose may occasion *risus Sardonicus*, alienation of the mind, madness, convulsions, apoplexy and death. Its effects are not confined to its internal exhibition : Galen mentions that an opium plaster held on a gladiator's head by a stratagem of his enemy, speedily deprived him of life, but experience does not tend to induce belief in this legend.

OPTICAL DEFECTS

As the eye is a camera, just as subject to the ordinary laws of light as any other optical instrument, it may be free from disease and perfectly sound, and vision may still be indistinct because the rays of light are not accurately focussed upon the retina. The causes that give rise to such imperfections of sight are called optical defects. Each defect will be found described under its own name.—*See* ASTIGMATISM, HYPERMETROPIA, MYOPIA, PRESBYOPIA, etc.

OXALIC ACID

There is an acid obtained by the chemical action of nitric acid on sugar, which was on that account called acid of sugar ; it is now known by the name of oxalic acid. It is a white crystallized salt, but intensely acid and acrid to the taste. In the dose of half an ounce it has frequently proved fatal in half an hour and there is no doubt but that a much less dose would destroy life. Another salt in crystals, but of a brownish appearance, sold under the treacherous name of salts of lemons, is a compound of oxalic acid and oxalate of lime and is also a poison. Oxalic acid has been frequently taken by mistake and has also been occasionally used for the purpose of suicide or murder. The mistake has always arisen from its very strong resemblance in appearance to Epsom salts. The taste will in a moment discover the mistake, or satisfy a doubt, when it arises. The taste of oxalic acid is sour and acrid, whereas the taste of Epsom salts is a decided bitter. The symptoms, after taking oxalic acid, are a burning sensation in the throat and stomach, often bloody vomiting, an extreme general debility almost amounting to paralysis and a remarkably feeble and often imperceptible pulse ; when the dose is large, death occurs in a few minutes, or in almost every such case within the hour. In some instances there has been numbness down the back and in the lower extremities, and in others very acute pain in the same regions.

OXALIC ACID, ANTIDOTE TO

Should the mistake be immediately detected, the antidote is magnesia or chalk, which form with the oxalic acid insoluble and harmless salts ; but not so, be it well remembered, either with potash or soda, for the salts produced by a combination of these with oxalic acid are readily soluble and decidedly poisonous. Mix the magnesia or chalk with just sufficient water to make it drinkable and give a wineglassful every two or three minutes, till the patient has swallowed two or three ounces of the magnesia or chalk. Vomiting need not be excited, nor the stomach pump used, at least not till after the administration of the antidote.

OXALIC ACID, TEST FOR PRESENCE OF

The best test of the presence of oxalic acid is lunar caustic. Boil the contents of the stomach, or the matter ejected from the stomach by vomiting, previously to the administration of the antidote, in water for half an hour ; add some potash and then filter through paper. To this solution add a few drops of a solution of lunar caustic and, if oxalic acid has been present, you will have a dense white precipitate, which, when collected on a filter, dried and heated, becomes brown on the edge, fulminates faintly, and is dispersed. Owing to the time occupied in making the test, however, it is safest to give the antidote first and test afterwards, if thought necessary.

OXIDE OF ZINC OINTMENT

See OINTMENTS.

OZÆNA

(Greek, **oze**, " a stench ").

This disease derives its name from the offensive discharge from the nose, consequent on the ulceration and destruction of the lining membrane, though it may arise from other causes. The condition should not be neglected, as it may spread to the bones, with serious results. The treatment consists in applying, by means of a syringe or a nasal douche, a weak solution of Condy's Fluid, carbolic acid, boracic acid, alum, or glycerine with a little tincture of iodine. Subnitrate of bismuth and powdered gum in equal parts may be snuffed up. The system should be treated with codliver oil, iron, or arsenic, but in consequence of the difficulty of recognizing the possible complications and of reaching the seat of the mischief, it is very desirable to submit the case to the doctor's hands.

OZONE

(Greek, **ozo**, " I smell ").

Ozone is one of the chemical constituents of the atmosphere. This gas is what is known in chemistry as an allotropic form of oxygen —that is to say, it is oxygen exhibiting various attributes which distinguish it from ordinary oxygen. Ozone possesses both taste and smell, differing in this from oxygen, which possesses neither. Its chemical affinities are more powerful than those of ordinary oxygen. It is denser or heavier by one half than oxygen in its normal state, three volumes of this gas combining to form two of ozone. This gas can be produced artificially by various means, one of which is the passage of a series of electrical discharges through pure oxygen. The invigorating air of open downs and mountain regions owes much of its health-giving properties to the presence of ozone. The sea breeze is generally especially rich in ozone. Its influence on man and the reasons of its marked effect on the recovery of invalids who are brought under its sanative influence are not yet understood.

PAIN IN THE SIDE

See STITCH.

PAIN IN THE STOMACH, CAUSES OF

Gastrodynia, which strictly means pain in the stomach, includes all degrees of pain, from the sensations that one suffers in stomach-ache to pain of an almost unendurable character. The pain is not always felt in the same spot, nor is it of the same character. Weight, oppression and distension are the sensations most frequently complained of and these are the symptoms which ordinarily indicate slight disease of the stomach. More severe forms are commonly accompanied by a sensation of burning—not heartburn—or by a horrible feeling of gnawing or tearing. Pain in the stomach may arise from various causes, such as the presence of irritant matters, disease of its walls, alterations in its secretions, etc. Foreign substances of an irritant character may be either indigestible articles of food, or regurgitated bile, or corrosive substances swallowed, such as strong acids or alkalies ; these, however, being rare compared with the former. Diseases affecting the substance of the stomach and giving rise to pain are mainly two—simple ulcer and cancer. Altered secretions are a very important cause of pain. Frequent pain in the great gut may be mistaken for pain in the stomach ; but, as a rule, this is generally due to flatulence and extends to other parts of the abdomen which pain in the stomach alone cannot do.

PAIN IN THE STOMACH, TREATMENT OF

As to treatment of pain in the stomach, that must be entirely guided by the nature of its causation. Heat and cold will, however, frequently give relief and may be applied either externally or internally, or both. Neither of these is likely to do harm. Dr. Mayo says :—" There are attacks of pain in the stomach, which are commonly described as spasms. They come on suddenly, are of the most acute description and seldom last long ; they are described as suggesting the idea of a knife struck through the side. Women are more subject to these seizures than men. I suppose that they entirely result from distension with wind ; they are allayed at once by taking either a wineglassful of very hot water alone, or hot water with twenty drops of sal volatile, or a dessertspoonful of brandy ; at the same time, in which the relief seems to consist, wind breaks off the stomach. Sometimes a few drops of laudanum in hot water form the best remedy for these seizures : but it is better to try other remedies first. Generally speaking, pain in the stomach rarely denotes serious disease : it is the result, commonly, of slight and functional disturbance and is a matter rather of present suffering than of apprehensions as to the result. Nevertheless, this remark does not hold true always. Obstinate cases of pain at the stomach, with flatulency, recurring irregularly, lasting several days or weeks, gradually going away and then renewed, again going away and returning, are sometimes dependent upon ulceration of the lining membrane of the stomach. This complaint is of a serious nature ; for although it is often recovered from, yet a certain proportion of those attacked with it, after weeks, or months, or years of capricious indigestion, die suddenly, through perforation of the stomach and the escape of its contents into the cavity of the belly."

PAINS, FALSE

See False Pains.

PALATE

The palate or roof of the mouth

consists of two portions: the hard palate, in front, and the soft palate (called the velum) behind it, terminating in a central pendulous structure—the uvula, commonly, but erroneously, called the palate. The hard palate, which is a bony plate, is covered by a dense tissue called the periosteum (from two Greek words, **peri**, "around"; and **osteon**, "a bone"). The soft palate is a soft movable fold or curtain of mucous membrane, including muscular fibres. It serves important purposes in the mechanism of the mouth, assisting materially in the articulation of sound, in the act of swallowing and, conjointly with certain muscles connected with it and with the tongue and pharynx, preventing the passage of food into the nose, which opens into the upper part of the throat above the soft palate.

PALPITATION OF THE HEART

Palpitation is the name given to the beating of the heart when it becomes obvious to the senses. The two things which have most influence in producing this alteration are increased violence of the heart's action and mere irregularity of action. In ordinary circumstances the motion of the heart is so even and regular, that one can only detect its beating by placing the hand over the spot where its apex strikes against the ribs, but in certain cases of heart disease the beating may be so violent as to shake the bed in which the patient lies. Palpitation, though very often a sign of heart disease, is by no means invariably so; perhaps, out of all the cases of palpitation one sees, the majority are in persons not the subjects of heart disease; for anything which interferes with the regularity of the heart's action produces the painful or unpleasant feeling of palpitation and that may be readily done in many ways without the substance of the heart being affected. It may arise from a variety of causes, chiefly mental excitement, hysteria, indigestion, flatulence, abuse of tea and tobacco, hurry (as in the foolish practice of running to catch a train), poverty of the blood (as in anæmia, in which the action is quickened to carry on the circulation) and over-richness of the blood (as in plethora, the full-blooded condition stimulating the action). The treatment of the main disease will relieve the palpitation, but in cases due to more ordinary causes, the symptoms will gradually pass away if the patient will remain at rest for a period. A teaspoonful of sal volatile in a little water is often helpful. Tea and tobacco must be taken in moderation (their use being dropped till the palpitation has subsided) and errors of diet should be studiously avoided. A belladonna plaster may be applied to the heart region, or two tablespoonfuls thrice a day of a heart tonic (tincture of digitalis, 5 drops; tincture of perchloride of iron, 10 drops; syrup, ½ drachm; chloroform water to an ounce) may be administered. Intoxicants are pernicious and should be abandoned, save for medicinal purposes.

PALSY, SYMPTOMS OF

(A contraction of "paralysis").

The disease whose scientific name is **paralysis agitans** but which, in common language, is called palsy, or shaking palsy, consists in a want of power in co-ordinating the muscles and also, it may be said, in keeping them at rest. The shaking commonly begins by affecting the hands and arms, but later it may affect any part of the trunk or limbs. Very often the head is early affected; later, even the jaws may be involved. This agitation is increased by any mental effort, especially to call into play the muscles involved. The disease is progressive and by and by the whole body becomes concerned, so that the patient can hardly walk, being always obliged to run. All the time the senses are unimpaired and the patient is acutely sensible of his misfortune, which often sadly interferes with his occupation. His bodily power subsequently becomes impaired, for he is often unable to sleep at night and even unable to take his food in comfort from the unceasing agitation.

PALSY, TREATMENT OF

These cases commonly occur in men advanced in life and in them little benefit is to be hoped for; but it may occur earlier and then we may hope tò alleviate, if not to cure, the conditions by the use of strychnine, iron and galvanism, especially of the continuous current. Even in the most favourable cases the prognosis is bad, but with care a long life may be possible and, as the intellect is quite clear, much good work may be done by the sufferer, whose condition can only be handled under medical advice.

PANCREAS

(Greek, **pan**, "all"; **kreas**, "flesh").

The pancreas, which is known in the animal as the sweetbread, is a little gland six or eight inches long, weighs a few ounces and lies across the spine against the back wall in the upper part of the abdominal cavity, directly behind the stomach. It is of a pale red colour and in shape somewhat resembles the tongue of a dog. It has an excretory duct, which opens into the duodenum in connexion with the hepatic duct from the liver. The fluid known as the pancreatic juice, which this gland furnishes, looks very much like the saliva and, indeed, possesses very much the same properties. It is discharged into the duodenum, or first portion of the intestine, where the bile is poured in. The office of this fluid is similar to that of the saliva. It completes that change from starch to sugar which the saliva may have left unfinished and which the fluids of the stomach have no power to accomplish.

PARALYSIS

(Greek, **para**, "beside;" **luo**, I loosen.")

This term is generally used to signify a loss of motion in some part of the body; but as the nerves supplying most parts of the body are of a mixed character—that is, motor and sensory—the idea usually conveyed implies also a loss of sensation. Paralysis may, however, be motor or sensory, or both. Moreover, it may be complete when there is a total loss of power and sensation; or partial, when these are partly, not wholly, lost. Sometimes the word partial is used to imply that only certain parts of the body are affected; but for this purpose the term local seems preferable. General paralysis implies that the whole body is affected, but the term general paralysis of the insane expresses one particular form of malady which is an accompaniment of insanity. The two most common forms of paralysis are hemiplegia and paraplegia. Hemiplegia is that form of paralysis which affects one lateral half of the body without the other side being affected : hence hemiplegia is right or left. Paraplegia, on the other hand, means paralysis of the lower half of the body ; but there is no right or left paraplegia—it must affect both sides, if not quite equally, at all events to some extent. Generally a first and partial attack of paralysis is successfully treated. Friction, healthful living, digestible food and electricity are the common features of its domestic management. The doctor is responsible for the treatment of the cause. When the disease is long-continued, great care must be taken that bed-sores do not form.

PATELLA

The patella, or knee-pan, is well known. It is a small round bone constituting the projection of the knee. It increases the power of the muscles which extend the leg and protects the front of the knee joint.

PATELLA, FRACTURE OF THE

This entails long confinement on the part of the sufferer. The aim of treatment is to approximate the two ends of the bone together and maintain them in as close proximity as possible.

PELVIC CAVITY

The pelvic cavity is formed at the sides, back and front by the pelvis and is partially closed above by membrane, muscles and skin. In it lie the bladder, the lower part of the large intestines and, in women, the organs of generation.

PELVIS

The name pelvis has been given to this irregular structure of bone from its fancied resemblance to a basin. It is this portion of the bony framework that supports the spine.

PERCHLORIDE OF IRON, TINCTURE OF

See MEDICINES, HOME.

PERICARDIUM

The name given to the membrane which surrounds and encloses the heart, as it were in a bag.

PERICEMENTUM

The pericementum is a tough, fibrous tissue which invests the roots of the teeth and lines their sockets. The cementum, or outer layer of the roots, receives its nourishment through it. It is owing to this fact that, after the death of its pulp, a tooth still possesses a certain amount of vitality and is, therefore, retained in its socket, frequently for years, —which would not be the case if it did not hold a vital relation to the jaw. The pericementum, moreover, while attaching the teeth firmly to their sockets, serves as an elastic pad or cushion, preventing, to a considerable extent, the damaging effects upon the teeth which would otherwise be experienced from accidental blows or other violence, as well as from thoughtless and unnecessary voluntary injury by efforts to crack nuts, untie knots and other foolish practices.—*See* also GUM.

PERICRANIUM

The name given to the very firm, thin and closely-attached membrane that covers the skull. This membrane, when spoken of in connexion with other bones of the skeleton, is called the periosteum.

PERIODICAL FEVER

See FEVER, CHARACTERISTICS OF.

PERIOSTEUM

The very firm, thin and closely-attached membrane with which all bones are covered. The term **pericranium** is applied to this membrane when it covers the skull or cranium.

PERISCOPIC GLASS

See SPECTACLES.

PERITONEUM

The thin membrane which covers or lines the inner surface of the abdomen or cavity which contains the viscera or bowels. Although it is thin, it is nevertheless of great strength, as it is a powerful auxiliary in retaining the bowels in their proper places, but permits of perfect freedom of motion when necessary.

PERITONITIS

This disease is inflammation of the membrane lining the abdominal cavity and is usually caused by diseases or wounds of the abdomen, or of the organs covered by the peritoneum. Very rarely it occurs in previously healthy persons from simply catching cold. Over-exertion, straining in lifting heavy weights, sudden blows or kicks, may bring on the inflammation.

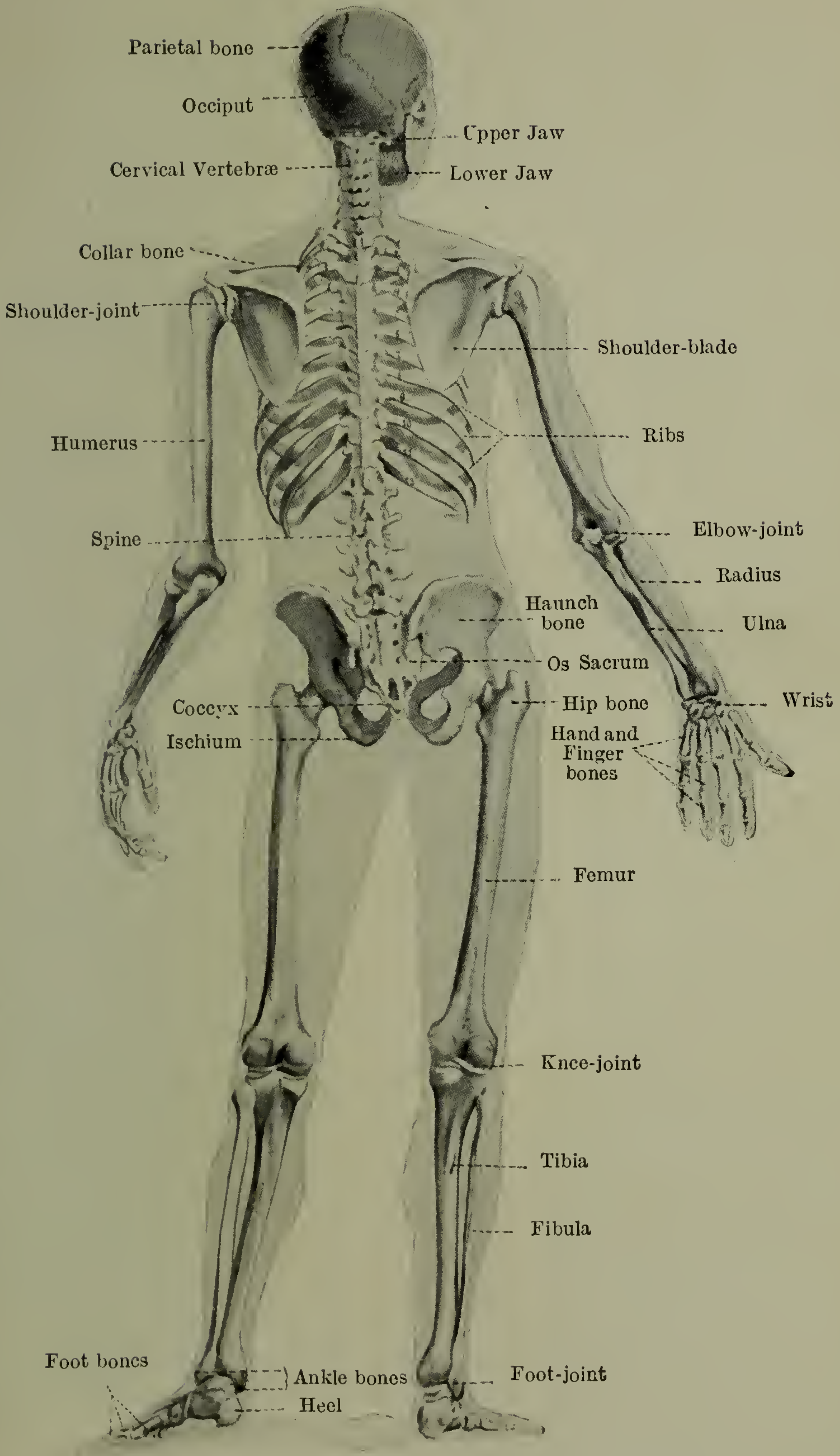
PERITONITIS, SYMPTOMS OF

These generally begin with severe pain at the seat of the injury and a feeling of great depression, followed by fever. The pain is, however, the most characteristic symptom and is increased by any pressure, even that of the bedclothes, on the abdomen. The patient lies on his back with his knees drawn up and is afraid to speak and almost to breathe. The abdomen is puffed up, the intestines being filled with gas. There is obstinate constipation and at times continued vomiting. All these symptoms become very decided in a few days and whether the patient is to die or live can generally be determined in about a week. If by that time the pain, temperature and pulse subside, there is ground for hope.

PERITONITIS, TREATMENT OF

There will be but little to do beyond keeping the room well aired, its temperature even and giving all the medicines promptly. See that the patient makes no effort whatever to relieve the bowels, or to use the urinal frequently. The uncomfortable desire to do so is due to pressure caused by distension of the intestines. If cold applications are ordered, use a pocket-handkerchief squeezed out in cold water and applied very gently : cover it with very thin rubber-sheeting or oil-silk and re-wet it always before it becomes warm. Great mischief frequently arises from carelessness in this matter. It is better not to apply the cloth than to allow it to become warm. If the patient can bear ice, half fill an oil-silk or rubber bag with it, pounding it small by folding it in one end of a towel and striking it hard against a stone hearth. The bag must be large enough and the ice fine enough to mould themselves to the abdomen. Snow is better than ice when it can be obtained. The weight of the bedclothes must be kept off by means of a cradle contrived for the purpose. The patient's feet and knees must be kept warm, if necessary, with a separate wrap. Should opium be ordered, watch the breathing, counting the respirations, and keep strictly to the dose ordered. If exactness in giving medicines is of great importance in other cases, it is doubly necessary here. Should

SKELETON OF MAN (*Back View*).



convalescence take place, there will be opportunity for nursing and too much care cannot be given to the regulation of the patient's diet and times for eating. He must eat very sparingly at first—gruel, broth, milk, etc.—and return to solids only with the doctor's permission. Flannel must be worn next the abdomen. The bowels should be moved very slightly daily. Too early exertion from any cause might easily produce a relapse after convalescence has begun.

PERMANGANATE OF POTASH is a soluble substance particularly convenient of application and remarkably certain and efficient in its effects as a disinfectant and deodorizer. Its employment is limited mainly to local applications and to general effect upon the atmosphere of contaminated apartments by means of evaporating cloths saturated with a strong solution of the permanganate.

PERNICIOUS ANÆMIA

Pernicious anæmia is a general anæmia occurring without any discoverable cause whatever, with no previous loss of blood, no exhausting diarrhœa, no chlorosis, no purpura, and with no renal, splenic, miasmatic, glandular or malignant disease. The disease is a very fatal one, though of late years the proportion of recoveries has considerably increased, apparently owing to the more general use of arsenic in its treatment. The disease was first clearly described by Addison, a great physician of the last century. It makes its approach in so slow and insidious a manner that the patient can hardly fix a date to the earliest feeling of that languor which is shortly to become so extreme. The countenance gets pale, the whites of the eyes become pearly, the general frame flabby rather than wasted, there is increased indisposition to exertion, with an uncomfortable feeling of faintness or breathlessness in attempting it; the heart is readily made to palpitate, the whole surface of the body presents a blanched, smooth and waxy appearance, the lips, gums and tongue seem bloodless, the appetite fails, extreme languor and faintness supervene, breathlessness and palpitations are produced by the most trifling exertion or emotion; the weakness becomes extreme, the patient can no longer rise from his bed, his mind wanders, he falls into a prostrate and half turbid state, and, unless the treatment has been successful, he dies in the course of a few months. A striking feature of the disease is the absence of wasting, and the plumpness and often obesity of the patient seem in striking contrast to his utter lack of power. The only treatent which has, up to the present, had any effect on this disease is arsenic, but the complaint is far too serious for amateur treatment, and in all suspicious cases medical advice should be obtained at the earliest moment.

PERSPIRATION CHECKED BY COLD

A notable method by which cold acts as a disease-producing agent is by checking perspiration, thus preventing the carrying off of injurious worn-out materials of the body by the skin, that great avenue of purification, and, as a consequence, throwing more work upon the lungs and other internal organs, the office of which is largely to perform the labour which the skin is unable or unwilling to perform.

PERSPIRATION, OFFICE OF

The office of cutaneous perspiration is largely to regulate the temperature of the body by the evaporation from the surface ; the cooling effect of fanning results from the evaporation of the moisture on the skin. The more violent efforts of the skin to reduce temperature are seen naturally in warm weather, or artificially in the Russian or Turkish hot-air bath, when, as the body becomes more and more heated, the glands secrete more and more copiously. All know that if a person who is sweating profusely get in a current of air great cooling will result. It can be readily understood how, with the vast secreting surface of the human body exposed to the changes of the atmosphere, we may easily " catch cold " from chilling the surface in a draught, or from exposure too thinly clad, and by a " check of perspiration " cause congestion of internal organs.

PHARYNX

The pharynx is that large black space into which we look when the mouth is opened wide. Keeping the relations of the food and air tracks in mind, let the reader look into the throat of a person whose tongue is kept flat down on the floor of the mouth by a paper-cutter or spoon-handle. This will expose to view the interior of that portion of the throat (the middle portion of the pharynx) which is common to the two great avenues by which air and food are conveyed into the interior of the body. The avenue for air, or the respiratory track, is a double one at top, reaching the pharnyx by the interior of the nose above, as in ordinary breathing, or by the mouth in front, as in occasional breathing. The back portion of the throat is the posterior wall of the pharynx and is continuous with the back wall of the gullet, or food-pipe, the œsophagus. Like the palate, it is chiefly muscular in structure and is covered by a continuation of the same lining, or mucous membrane. It is loosely attached to the spinal column and can be moved upon it. The pharynx continues upwards along the spinal column, behind the palate, until it reaches the base of the skull, when it bends forward into a vaulted roof, which has much the shape of the crooked forefinger. It is often easy to pass the finger up behind the palate of an individual and feel this roof of the pharynx.

PHTHIRIASIS

Greek, **phtheir,** " louse.")

Phthiriasis (lousiness) and scabies (the itch) are two diseases which comprise the groups of animal parasite affections of the skin ; and although they are rare among the well-to-do and well-housed, they may be and are occasionally found even in the best society. Phthiriasis or pediculosis, is the name given to the state of lousiness, or the presence of lice and the eruption which they produce. Three varieties of lousiness are recognized, which are produced by three varieties of the louse : namely phthiriasis capitis, phthiriasis corporis and phthiriasis pubis.

PHTHIRIASIS CAPITIS

Lousiness of the scalp, caused by the head-louse sometimes results in a very considerable eruption of raw, exuding surfaces, covered with crusts, which may mat the hair together. The seat of this is very commonly at the lower and back part of the scalp beneath the mass of hair, especially in girls.

Among the better classes, however, there is generally but little eruption, except a few scratched points. Not at all infrequently we are unable to find a single louse upon the head, so carefully have they been removed by careful combing and washing. But the nits, or eggs, are quite as characteristic, and are just as surely indicative of the state as though the insects were themselves found ; for they hatch out so rapidly that the scalp free from pediculi to-day will contain many to-morrow. It is useless to try to remove these nits by combing, for they adhere very firmly to the hairs, and can only be removed when they are dead. It, however, is quite unnecessary to cut the hair to get rid of them, for after thorough treatment they usually come off readily.

PHTHIRIASIS CAPITIS, TREATMENT OF

In the case of a child or man, cut the hair short and apply white precipitate ointment ; in the case of a woman, spare the hair but thoroughly rub the ointment into the scalp. To remove the nits wet the hair thoroughly with acetic acid and dissolve the glutinous matter by which they are attached to the hair and then comb carefully, repeating both processes as often as may be required. Soaking the hair with petroleum, or an application of a mixture of ether and oleate of mercury will destroy the lice and their ova.

PHTHIRIASIS CORPORIS

The body-louse causing phthiriasis corporis, is the largest and the easiest to get rid of. It is rarely found on the body, but must be searched for in the folds of the under-clothing, especially where it presses, as on the shoulders and hips. Here will also be found the nits or eggs, which are small, white oval specks, attached to the loose fibres of the garment. In some instances, body-lice are the cause of prolonged itching, which results in so much scratching that very troublesome sores may result ; and if the proper diagnosis be not made and the pediculi removed, no progress will be made towards cure. Happily the treatment of phthiriasis of the body is very simple and effective and is embraced in the word cleanliness. Complete change of underclothing, bed linen, etc., together with warm baths, is all that is required ; except that, in order that the nits on the clothing should not hatch out, the garments should be baked in a disinfecting oven at a temperature of 212° F. or more. Occasionally the outer garment may contain them.

PHTHIRIASIS PUBIS

This is the name given to the condition excited by the third variety of louse, commonly known as crab-louse, or "crabs." It infests the hairs at the covered portion of the body, though it has been seen in the whiskers, eyelashes and eyebrows. It clings closely to the hair when it comes out of the skin and appears often as a little scab or crust, which is often hard to remove, so tightly does the louse cling to the hair with his crab-like claws. The irritation caused by these animals is often very great and the cause of the itching often goes long unrecognized.

PHTHIRIASIS PUBIS, TREATMENT OF

Any of the mercurial ointments (perhaps white precipitate for preference) will suffice to destroy this parasite, but there is danger of producing salivation if they are used too freely.

PIA MATER. *See* NERVES.

PHTHISIS. *See* CONSUMPTION.

PIERCING FOR EAR-RINGS

Piercing the ears is not so common as it once was and it is possible that the time is not far distant when sensible people will cease to perpetuate this relic of barbarism, but so long as it exists it demands a word of caution. The piercing is usually done by jewellers and consequently some important points may be unknown to them. In the first place the instrument used for piercing the lobule should be thoroughly cleansed after each operation, otherwise a small quantity of animal matter may remain on it, undergo putrefaction and thus poison the next person operated on. Diseases, too, could thus be communicated from one person to another. Another point to remember is, that nothing but the soft lobule should be pierced. Where this is small or hard, the greatest care is necessary to ensure against perforating the cartilage, which, in all probability, extends into the lobule. Ear-rings are sometimes torn from the lobule, thus causing a slit, which heals, leaving an ugly deformity in the shape of a kind of double lobule. In one instance, the writer saw a lobule that had been torn twice, thus leaving two permanent slits in it and giving the ear a fringed appearance. After the wound is made, properly fitting together the raw edges would prevent the deformity; but the latter once formed by healing wrongly, can be corrected only by the surgeon's knife.

PIGEON-BREAST

One of the commonest deformities caused by rickets is that known as pigeon-breast. The ribs are flattened, at the sides, so that the chest becomes narrower from side to side, and at the same time deeper from front to back. The breastbone appears prominent, and the lower part of the stomach projects. The subjects of pigeon-breast nearly always complain of shortness of breath, and frequently of palpitation. As the patients reach middle age bronchitis and emphysema manifest themselves. The only treatment worth consideration is directed to the cause. Abundance of nourishing and digestible food should be given, a liberal allowance of fresh milk being especially important. As much time as possible should be spent in the open air, and gymnastics and respiratory exercises are of great assistance. In those cases where the tonsils are enlarged or adenoids are present they should be dealt with by the surgeon.

PILES, ELECTUARY FOR
See ELECTUARIES.

PILES, EXTERNAL

(Latin, pila, "a ball").

The swellings known as piles or hæmorrhoids are situated in the region of the anus and, by their size and liability to irritation and inflammation, occasion much trouble and uneasiness and sometimes intense pain. These swellings may be caused either by circumscribed skin just within the anus, or by enlarged folds of the mucous membrane of the terminal portion of the gut, the folds frequently protruding from the anus. In the former case, the affection is called external, in the latter internal piles. External piles consist in a collection, just without the margin of the anus, of rounded hard tumours, covered by thickened skin and prominent ridges of skin. These growths at first cause little or no pain, but after a time one or more of them may become irritated and inflamed, and then give rise to very acute pain, with throbbing and a sense of great heat, and a constant desire to go to stool. The symptoms pass off in the course of three or four days, but the attacks are frequently renewed, and the piles gradually enlarge and invade the lower portion of the intestines. This affection originates in distension of the veins about the anus in consequence of obstruction to the circulation. External piles are met with generally in those who follow sedentary employments, and those who, in consequence of indulgence in highly seasoned foods and alcoholic drinks, suffer from congestion of the liver. Much horse exercise, long-continued standing and constipation are also causes of external piles.

PILES, INTERNAL

The presence within the anus of large, rounded, soft tumours covered with red mucous membrane is attended with more serious symtoms. These internal piles, when large, come down through the anus from time to time, generally when the patient is at stool and become engorged with blood and very painful. Evacuation of the bowels gives rise to a burning or throbbing sensation and, as the piles increase in size, becomes more and more difficult. A dull pain across the loins is complained of and occasionally the urine cannot be passed in consequence of irritation at the neck of the bladder. The most serious symptom is bleeding, which occurs during the evacuation of the bowels, when the piles are protruded and compressed by the anus. The blood is red and arterial and is often passed in considerable quantity. In addition to the discharge of blood, there is in most cases a constant flow of thick, slimy, or purulent fluid. These growths, like external piles, are sometimes inflamed. Then, in addition to intense pain and other severe local symptoms, there is high fever. Inflammation of internal piles sometimes ends in mortification and in expulsion of the mass of abnormal growth from the rectum.

PILES, INTERNAL, CAUSES OF

The causes of internal piles are similar to those of external piles. Congestion of the liver, causing venous obstruction in the intestines, and direct irritation of the walls of the intestines are the conditions which most frequently give rise to this affection. The latter condition is often due to an immoderate use of purgatives, especially aloes.

PILES, INTERNAL, TREATMENT OF

The general treatment of piles, both internal and external, consists in removing congestion of the veins of the liver and intestines, in keeping up the strength and health of the patient and in avoiding or alleviating the results of certain conditions favourable to the development of the disease. The patient should restrict himself to a carefully regulated diet and abstain from highly seasoned dishes, pastry and spirits ; wine and beer had better also be done without. Walking exercise is to be recommended and, during the summer months, sitting in the open air. Riding on horseback, or in a jolting vehicle, is positively injurious. The affected region should be well bathed every morning with cold water and then carefully dried. To external piles may be applied lead lotion or a weak solution of alum. Hazeline (wych hazel ointment) is an excellent application in bleeding piles and often acts like magic. For both external and internal piles the compound gall ointment and camphorated vaseline are very useful applications. When internal piles protrude after each evacuation, they should be sponged over with cold water, or a solution of alum, or be smeared with gall ointment. The bowels ought to be kept in daily action by some mild aperient, as rhubarb in the form of a pill to be taken at night, or confection of senna, castor oil, seidlitz, or Pullna water, to be taken in the morning before breakfast. By good management the bad effects of both external and internal piles may be much relieved, or, as occasionally takes place, the disease may be permanently cured. When, however, the affection increases in extent and intensity, it will become necessary to undergo some surgical operation in order to obtain permanent relief. This, of course, effects a radical cure and the operation is in no sense dangerous. A successful treatment is sometimes achieved by the introduction into the rectum of an ointment composed of some astringent and oil or grease—as, for instance, two drachms of powdered gall-nuts and an ounce of lard, or the extract of white oak bark and bacon, or powdered opium, resin and tallow, each one ounce, or equal weights of glycerine and tannin. Piles have also been cured by an ointment made of the extract of white oak bark, half a pint, and oil of old and strong bacon, half a pint, simmered together until a union takes place when cold. Apply every night until cured. For use internally, take a teaspoonful to a dessert-spoonful of sulphur in half a pint of milk every day. When the intestine falls down after evacuation, restore it by pressing gently with the finger and use some astringent as a lotion to prevent its relapse.

PILLS

The following will be found to be useful recipes for pills for general family use :—

1. *Aperient Pills, Mild.*—Take of compound extract of colocynth, half a drachm ; compound rhubarb pill mass, a scruple ; Castile soap, ten grains ; oil of juniper, five drops. Beat them into a mass and divide them into twelve pills. These are excellent aperient pills for occasional use in costiveness, bilious affections and on all ordinary occasions. One pill taken at bedtime is generally sufficient, but some persons may require two.

2. *Purgative Pills.*—Take of compound extract of colocynth, compound rhubarb pill mass, of each, half a drachm ; calomel, twelve grains ; oil of carraway, five drops ; syrup, a sufficient quantity to form the whole into a mass. Divide it into fifteen pills. These are purgative pills of great service in fevers, inflammation and all cases in which such a purgative is needed. Given in doses of two at bed-time, they are pretty certain of procuring free evacuations next day. One pill, or even half a one, generally operates as a very mild yet effectual aperient of much benefit in costiveness.

3. *Quinine Pills.*—Take of sulphate of quinine, twelve grains ; conserve of roses, sufficient to make twelve pills. One to be taken three times a day, before food. Useful in cases of convalescence

from fevers, inflammation, etc., when the appetite is capricious.

4. *Strengthening Pills, No.* 1.—Take of subcarbonate of iron, a drachm and a half; ipecacuanha in powder, fifteen grains; extract of gentian, half a drachm; socotrine aloes in powder, six or eight grains; simple syrup, or mucilage of gum arabic, a sufficient quantity to form the whole into a mass of proper consistence. Divide it into thirty pills. Two or three to be taken three times a day. Useful as a tonic in indigestion, etc.

5. *Strengthening Pills, No.* 2.—Take of sulphate of iron, half a drachm; subcarbonate of potash, ten grains; myrrh, in powder, a drachm; compound powder of aloes, half a drachm; beat them together and divide the mass into thirty pills. These pills are often of the greatest service in green sickness and retention or suppression of the menses, accompanied with a languid pulse; and also in indigestion, general debility, etc. Two may be taken three times a day.

6. *Tonic Pills.*—Take of dried sulphate of iron, eighteen grains; sulphate of quinine, twelve grains; extract of gentian, thirty grains. Mix. One pill to be taken three times a day. This is an excellent tonic pill and may be given in cases of general debility.

"PINS AND NEEDLES"

This is a name applied to that peculiar numbness and pricking of the arm, foot, or leg, which is so commonly felt after pressure on the nerve-trunk, or a long-continued constrained attitude. It is caused by some interruption to the circulation and is generally removed by rubbing or exercise. If it should continue, it may be the precursor of some more serious attack and medical advice should be sought.

"PINS AND NEEDLES," CAUSES OF

The cause of this condition has been thus explained. "By pressure for a certain length of time the sensibility of the nerve is greatly blunted. When this pressure is removed suddenly, the sensibility will gradually be revived; as each nerve-fibre, composing the trunk, returns to its normal condition of sensibility, a pricking sensation is felt and the successive prickings from the successive awakenings of the numerous fibres cause the pins and needles."

PINS, NEEDLES, THORNS AND SPLINTERS

Suppose a pin, a needle, a thorn, or any fine splinter, to have been thrust into a fleshy part; the pain will generally be much more severe than in an extensive flesh wound, or, as it is technically called, incised wound. First, examine accurately to ascertain whether any portion of the implement be broken off and lodged in the wound; and, if so, use the ordinary means of extracting it. A small thorn or splinter may frequently be brought to the surface and taken out by pressure on the soft surrounding parts, which may sometimes effectually be made by firmly pressing a key with its hole immediately over the wound. In other cases, a pair of forceps will enable you to withdraw the offending substance, and in others a trifling enlargement of the wound by a lancet will bring the thorn, or whatever else it may be, within view, so that it may be easily extracted. If a needle, or other pointed body, completely embedded in the flesh, can be grasped endways between the finger and thumb, the point may be made to penetrate the skin from within outwards, so as to be easily withdrawn. A fish-hook, buried in the flesh beyond its barb, must be withdrawn in the same manner, by carrying the point onwards, so as to penetrate the skin from within outwards. In cases of more difficulty it may be necessary to call in the surgeon who, by an operation that need cause no uneasiness, will extract the pin or needle by excision.

PLAGUE

This is a form of low fever associated with swelling of the glands, carbuncles and petechiæ, or hæmorrhage in the substance of the skin. It has been known for many years under different names, as the Black Death, the Levant Plague, bubonic plague, pestilential fever and glandular pestilence.

PLAGUE, CAUSES OF

Certain conditions have always been found to favour the development and spread of this disease, the causal organism of which, *Bacillus pestis*, was discovered in 1894 by Kitasoto in the blood of patients. Amongst these are residence upon marshy alluvial soils along the Mediterranean, or near certain rivers, as the Nile, Euphrates and Danube ; low, overcrowded, or badly-ventilated dwellings ; a warm, moist atmosphere ; decomposing animal and vegetable matter ; insufficient and unwholesome food ; and physical and moral wretchedness. The essential cause of epidemics, according to Dr. B. Arthur Whitelegge and Dr. George Newman, in their Manual of *Hygiene and Public Health*, "is the plague-stricken rat and the intermediate agent between rat and man and rat and rat is the common rat flea (*P. cheopis*) which acts as a carrier of the bacillus." Those who have lived in an elevated situation have escaped the disease when it has appeared in the district. The plague, like typhus, has often followed in the wake of famine and other calamities. The influence of season on the plague appears to be very marked. Cold weather seems to put a stop to its progress. The terrible mortality that ensues from this pestilence renders it very important that quarantine should be strictly enforced, that the most stringent rules should be made and carried out for the protection of other countries from its introduction by shipping and other channels of intercourse.

PLAGUE, SYMPTOMS OF

This disease seems to vary in its character somewhat in each epidemic and even in the same outbreak ; but the older records are not so clear as to be thoroughly trustworthy and the long absence of it from the United Kingdom (save in a few instances which have been promptly got under) has prevented medical men from observing its course. Swelling of glands comes on in the groin, armpits and neck. The carbuncles are generally on the upper and lower limbs, less frequently on the chest, back, or cheek. They may vary in number from one or two up to a dozen ; they vary also in size and in their tendency to become gangrenous. The petechiæ are small hæmorrhages into the skin and may be found scattered all over the body. A distinctive sign in the commonest type of plague is the presence of swellings or buboes in the groin, armpit, or neck. The fever symptoms are chiefly those of shivering, nausea, vomiting, lassitude, headache and giddiness; the countenance is heavy and stupid and the eyes are suffused and watery. There are then heat of the skin, great thirst, frequent vomiting, a coated tongue, fœtid breath, a weak pulse and great prostration. In some there are excitement and delirium, in others heaviness and stupor. The bowels are generally relaxed and the stools dark and offensive. The urine is passed in less quantity than usual and may even be bloody. Bleeding may also occur from the mouth, stomach, bowels and air-passages. In some the intellect is clear to the end and in other cases convulsions and coma may come on.

PLAGUE, TREATMENT OF

Not much can be done when an outbreak occurs with respect to giving any medicine with a beneficial effect. But much may be done by avoiding any over-active measures and allowing the patient a pure air and an equable temperature. Bleeding, active purgation and the use of mercury must be carefully avoided. The diet must be light and nourishing and the patient's strength supported as far as possible. The treatment, in fact, is the same as that prescribed for typhus fever. Whitelegge and Newman state that Haffkine's vaccine diminishes the incidence and fatality of the disease in inoculated subjects, though not affording perfect immunity. They urge the importance of such preventive measures as vigorous disinfection of infected houses, inspection, segregation, and inoculation of patients, and extermination of rats. Under an Order of the Local Government Board of the United Kingdom, issued in 1907, the Medical Officer of Health is required to make a thorough examination of any vessel coming from an infected port, or containing patients, or that has had a fatal case during the voyage; and the ship must lie at her moorings until the inspection is finished and disinfection completed.

PLAGUE, DR. GREGORY ON THE

The symptoms of plague have been described by Dr. Gregory as follows:—"A feeling of great languor and lassitude ushers in an attack of plague, which, for the most part, happens towards evening. There is always a cold stage, though it is seldom of long duration. Heat of skin, headache and giddiness succeed. The pain of the head is referred to the temples and eyebrows; the eyes appear heavy, dull and muddy. The expression of countenance changes in a remarkable manner. Sometimes there is a wild and furious look; sometimes a look claiming commiseration, with a sunk eye and contracted features. The most striking of all the early symptoms of plague is the staggering and the sudden extreme prostration of strength. A strong tendency to void the urine is generally noticed. The stomach is very irritable and rejects almost everything presented to it. The tongue is white and moist. The bowels are sometimes torpid and at other times loose, the evacuations being always highly offensive. The speech falters. The pulse is at first small, hard and quick; but after the appearance of buboes it often becomes fuller and softer. It is sometimes intermittent; in point of frequency its average may be stated at 100. The heat of the skin is seldom very intense. The head is occasionally perfectly clear and collected; at other times stupor occurs immediately after the formation of the hot fit. Some cases of the disease are ushered in by a violent fit of mania ; the greatest indifference with regard to recovery prevails and is always reckoned a most unfavourable symptom. After one, two, or at farthest, three days, pains in the groin and armpit announce the formation of buboes. These pains are often highly acute and, unless speedily followed by the swelling of the gland, the patient dies delirious. In women the armpit, in men the groin, are chiefly affected. Carbuncles appear at the same time, but indifferently on all parts of the body. Petechiæ and vibices are more frequent than carbuncles, which, it appears, do not occur above once in twenty cases. The fatal termination is sometimes preceded by violent hæmorrhages from the mouth, nose, or intestines. The duration of the disease is very various. A few cases are on record where the patient died within a few hours of the invasion. To many it proves fatal during the first paroxysm or period, which includes the time from the evening of the attack to the close of the following night. The third and fifth days are, however, upon the whole, those of the greatest danger. The former is the usual period of the appearance of bubo ; the latter of the abatement of the febrile symptoms. If the patient survives the fifth day and the bubo is fully formed he may be considered as nearly out of danger.

PLANT RASHES

Local inflammation of the skin is occasionally caused by contact with leaves of certain plants, few of which, fortunately, are native to this country. The chief characteristic of these rashes is their limitation to the hands and face. The principal plants which are responsible for these eruptions are two species of primula, one being the ordinary Chinese primula of our green-houses, the other and more irritating one being the beautiful primula Obconica. Among British plants which set up irritation of the skin are the common stinging nettle and in some people the leaves of elder and buttercup. It is a peculiarity of most of these plant rashes that certain individuals appear more predisposed to them than do others. The rash usually appears in the form of red spots and patches, or of raised weals. There is usually a good deal of tingling and irritation. As a rule after a few days the surface skin peels of in the form of fine scales. The most useful application is a concentrated solution of acetate of lead in methylated spirit.

PLEURA

(Greek, **pleura,** "the side," or "a rib").

The name given to the thin membrane which covers or lines the inner surface of the thorax or chest and envelopes the internal organs contained in this portion of the body as in a closed sac. When this membrane becomes inflamed, the disease that is the exciting cause of the inflammation is called pleurisy. Each lung, as it has been said, is covered by this delicate membrane and the sides of the chest are lined with it. In the movements of breathing, the lung does not, therefore, rub against the side of the chest, but the pleura covering the lung rubs against the pleura lining the chest. A small quantity of fluid is thrown out from the pleura and lubricates the lung in its movements.

PLEURISY, CAUSES OF

Exposure to wet and cold is the most common cause, but it may come on after an accident in which the ribs are broken, after cases of stabbing in the chest, or from a gunshot wound, or other internal injuries.

PLEURISY, SYMPTOMS OF

The patient first complains of a severe catching pain in the affected side and this is made worse on taking a deep inspiration, or coughing. The pain is usually confined to one spot and on listening there, one may hear a rubbing sound, due to the roughened surfaces moving on each other. There is also a feeling of weakness and lassitude, the pulse quickens, the tongue is coated white ; there may be headache, thirst and loss of appetite ; the temperature is raised and the usual febrile symptoms appear. In a day or two the breathing becomes worse, the sufferer keeps to his bed and lies on his back in a diagonal position, so as to enable the healthy lung to expand while the affected one is too sore to rest on. These symptoms go on for several days without much change being observable, but they vary in intensity in different cases. At last comes the time when the fluid begins to be absorbed and when the lung begins to expand again ; but this takes up a very variable time, so that no rule can be laid down as to the duration of pleurisy, some cases being very slight, while others may take weeks and even months before they are really cured ; but long before this the severe symptoms have abated and the chief trouble is shortness of breath on any exertion being made. In most cases the patient is liable to pain in the chest afterwards and to a recurrence of pleurisy on being over-heated, or on exposure to cold or wet.

PLEURISY, TREATMENT OF

The patient must, at once, be placed in bed in an atmosphere of about 60° to 65° F. and the air should be tolerably moist. This can be effected by boiling some water in a kettle on the fire and letting the steam escape occasionally into the room. The main thing is to avoid any great variations of temperature and especially any chills to the surface of the body. Nor should the patient be moved about from one room to another if such movement cause any distress. Nor should he talk more than he can help. Three or four leeches applied to the spot where the pain is greatest will give much relief, and, when the bites have finished bleeding, a large hot linseed-meal poultice should be applied to the chest ; but care must be taken that the bleeding is not renewed on applying the heat, as too much blood may in that way be drawn and tend to exhaust the patient and make him feel faint. Cottonwool may also be applied for a similar purpose. Light food must be given and milk is generally borne most readily in the early or febrile stage of the complaint ; a light pudding, eggs, beef-tea, broth, jelly and fish may be given when the appetite returns and the tongue begins to clean. Restlessness at night is a common symptom, but this must be borne as well as possible, for any anodyne, as opium, etc., only tends to increase the difficulty of breathing and adds to the distress. During the recovery the patient should be careful not to go out too soon, more especially if the weather is cold, foggy, or wet.

He should sit up in the afternoon and may go from one warm room to another, but should not exert himself too much if the breathing becomes hurried in doing so. Tonics may be given to improve the general health and the patient may return to his ordinary diet. All cases should be careful for some weeks to avoid exposure to bad weather ; should not go out after sunset ; if possible, avoid getting overheated ; and always wear flannel next the skin.

PNUEMONIA, SYMPTOMS OF

(Greek, pneumon, " lung ").

This is an inflammation of the proper substance of the lungs. The disease generally announces itself with a chill or chilly feeling, which lasts from half an hour to an hour or two before a sensation of heat can be produced. The temperature will rise on the first day and sometimes reaches 103° to 105° F. There are pain in the back and loins and loss of appetite and flushed face. The first decided symptom of pneumonia will be shortness of breath, so that only brief sentences are spoken without the need of breathing and there is a " stitch " in the side. Do not postpone sending for a doctor, especially if the patient is old, feeble, or a child.

PNEUMONIA, TREATMENT OF

Keep the temperature of the room the same night and day (at 65° to 70° F.) ; do not let it become cool and then try to remedy this by excessive heat ; similarly do not let it be overheated and then cooled. Change the nightdress morning and evening, keeping two in use. Warm all the bed and body clothing when changed. Use warm water for bathing the patient and keep him covered during the process, drying at once with warm, soft towels. Never turn back the bedclothes so as to expose the patient even for a moment. Keep him well supported by pillows under the shoulders : the breathing is easier for this support. Put an extra wrap about the shoulders ; which are exposed by this upright position. Take care that the feet and legs are warm and guard in every way against draughts and check of perspiration. Watch the expectoration ; use a sputa cup, if possible, instead of cloths. An iron-rust colour is common, rather than clear streaks of blood in the mucus. Keep the expectoration for the doctor's inspection ; absence of it at the onset of the disease is unfavourable. Observe the breathing during sleep, and whether the patient feels pain when lying in one position rather than in another. Notice the character and quantity of the urine and report all these things to the doctor. All the symptoms will increase in severity during the first week and the critical day will, in ordinary cases, occur at its end. The amount of food taken will be very small, while the strength will be greatly reduced by the progress of the disease ; it is therefore necessary to give the most nourishing articles in concentrated form—milk, with white of egg, custards, beef essence, strong chicken tea, etc. If lemonade is allowed, make it by using flax-seed tea, then cooling it and adding the lemons and sugar. Wine whey is suitable and nourishing as a drink. Ask the doctor for further directions as to feeding and whether the drink shall be cold or warm. The patient should have a little food at short intervals. Not more than two hours should pass without it if there is much weakness. When solid food can be taken, let it be very tender mutton or beef. Sandwiches made very small and thin of raw beef scraped, and a saltspoonful of potted beef and ham added, may sometimes be taken, and with a glass of milk will make a nourishing meal.

POCKET FILTER

In foreign climes a pocket filter is used by soldiers and those who are travelling in a country where fresh, pure water is not easily obtained. Water should be boiled first and then allowed to cool; or tea may be made and the cold tea saved for next day. When the water supply is very short, advantage should be taken of every rainfall; salt or brackish water should be distilled.

POISONING

With regard to cases of poisoning, it is desirable, first of all, to lay down certain rules which apply more or less to all cases and which may be called into play by any one. Suppose an individual has swallowed some poison accidentally or on purpose and it becomes necessary to interfere for his safety, three things have to be done—first, to get rid of the poison; second, to stop its effects and, third, to remove the evil it has done. One or other must come first, but it does not greatly matter which of the first two really be first attended to; the first always comes best. When the question arises whether we are to get rid of the poison before stopping its action, or after, one rule enforces itself: that is, to save time. "Whatever is readiest is best," is emphatically the rule in dealing with poisoning. Better the poorest remedy given at the moment, than the very best given an hour later. There is this, however, to be said, as far as the public are concerned, that they always have the means of getting rid of the poison by them, but not always the means of stopping its action, or remedying its effects; so that, generally speaking, the former should be attempted in the absence of skilled aid. A considerable number of poisons are what might be termed self-evacuating; having been taken, they set up vomiting and purging and are thereby eliminated. In such cases, all that is necessary to be done is to aid the self-evacuating process; especially to aid the vomiting and so perhaps get rid of the poison altogether. Ordinarily two methods are employed to get rid of the poisonous substance in the stomach; these are the stomach-pump and vomiting. It requires considerable skill to use the stomach-pump, and when one is required there must also be obtained the skilled aid necessary for its employment. In passing the tube down into the stomach, the grand rule is to use as little force as possible and to make the point of the tube slide along the posterior wall of the gullet. Occasionally, grievous accidents have arisen from unskilful use of this instrument, and so any one not acquainted with it and attempting to use it should attend implicitly to this rule. The great advantage of the stomach-pump is that it allows you to wash the stomach out. With a properly-constructed instrument it is possible to reverse the current and so to wash out the stomach effectually. There are, however, certain cases—as where violent corrosives have been swallowed—where the tissues are so much softened that an attempt to pass the stomach pump would very likely end in driving it through the tissues and such attempts must, therefore, be strictly avoided. Another advantage of the stomach-pump is that it requires no action on the part of the stomach to empty that organ. In cases where the stomach is paralysed, as it sometimes is in opium poisoning, this is of very great importance. In cases where, from whatever cause, the stomach-pump cannot be employed, vomiting must be induced. This, sometimes, is one of the results of the poison itself; in others it must be excited. If, as most irritants do, the poison has given rise to vomiting, it may only be necessary to encourage it. This is best done by tickling the fauces with a feather and by copious draughts of lukewarm water. This process, though exhausting, must be continued till everything seems expelled from the stomach. Sometimes, however, there is no vomiting and then something must be given to cause the stomach to get rid of its contents. Here the same rule that the readiest is best prevails. It is useless, or worse than useless, to wait till an emetic is brought from the chemist's shop; if that be far away, the resources of the home must suffice. Three things may be made use of as emetics, which are to be found almost everywhere. These are mustard, salt and smelling salts, besides the stimulation of the fauces with the finger and the use of lukewarm water, etc. Smelling salts are not suitable for all cases, but are good in a certain class of cases of poisoning, especially by vegetable substances, which give rise to narcotic symptoms. The dose of this is half a teaspoonful given in a pint of lukewarm water and followed up by copious draughts of the same. Mustard is a better emetic and is generally to be had; its use is limited to those cases where there is no violent irritating effect produced by the poison and the stomach requires a stimulant to call its action into full play. The dose of mustard is a tablespoonful mixed with a pint of lukewarm water and followed by copious draughts of the same. Salt can always be had and a handful of this dissolved in water will usually suffice to produce copious vomiting. In the case of poisoning by a corrosive substance such as sulphuric acid (Vitriol), nitric acid, hydrochloric acid (spirits of salt), carbolic acid, strong ammonia, caustic soda or caustic potash, no attempt must be made to induce vomiting, or death may result from perforation of the stomach walls.

POISONING BY FISH

Various fish and shell-fish cause poisonous symptoms, which in many cases are of so severe a nature as to end fatally. The principal form of fish poisoning is that produced by the mussel. The symptoms of mussel poisoning may result either from raw or cooked mussels. These symptoms are numbness, and coldness, with dilated pupils, and rapid pulse. Diarrhœa and vomiting are unusual. Fatal collapse may occur within a couple of hours. In the way of treatment the obvious thing to do immediately the poisoning is suspected is to induce vomiting by means of emetics, and thus free the stomach from as much of the virus as may not yet have become absorbed into the system.

POISONOUS INSECTS, BITES OF

Among the invertebrata, the scorpion is perhaps the most formidable. Its sting is the claw at the end of its caudiform abdomen; this claw is perforated and connected at the base with poison-glands. The symptoms produced by its attack very much resemble aggravated forms of wasp stings. It is found in the hotter regions of the globe, and a small species in Southern Europe. The best remedy is the external application of ammonia, as well as its administration internally.

Centipedes (*Scolopendra*).—The poison of these creatures is conveyed by curved fangs connected with the mandibles, which are perforated and probably communicate with poison-glands.

Spiders (*Arachneidæ*).—Of these there are a few species deserving of special notice. The tarantula (Southern Italy) has long enjoyed a reputation for the extraordinary effects said to be produced by its bite. Direct experiment, however, has shown that nothing beyond slight local irritation is produced; in fact, most of the tales connected with spiders' bites are fabrications. The bites of insects are comparatively innocuous; but it is otherwise with their stings. Stinging insects belong chiefly, if not exclusively, to the order Hymenoptera, in which the sting, in the sterile females, represents the modified ovipositor. The instrument consists essentially of two exceedingly fine sharp darts enclosed in a tabular sheath, at the base of which is placed a special venom gland or sac, whose contents are injected into the wound made by the serrated or barbed darts.

POISONOUS INSECTS, BITES OF, TREATMENT OF

Ammonia in the form of sal volatile is the best application for allaying the smarting and inflammation produced by the stings. If a person has been stung sufficiently to cause faintness, cordials and opiates must be administered without delay. The point of injury should be examined minutely and the sting, which is frequently left in the wound, removed with a fine forceps. It sometimes happens that a wasp or bee may be swallowed in fruit or drink; the danger then is very urgent, from the rapidity with which the fauces swell up the moment the sting enters; leeches should be applied externally and hot salt-and-water gargle used frequently. The operation of laryngotomy, however, is usually the only available remedy.

POISONS AND ANTIDOTES

To impress this subject more strongly on the memory, the most ordinary poisons and their antidotes are here placed in a tabular form.

Poison	Antidote
Arsenic	Two tablespoonfuls of dialysed iron, in hot water, often repeated; magnesia in large quantities.
Belladonna	Pint of hot black coffee (strong), hot water to feet and artificial respiration.
Corrosive sublimate	White of eggs.
Verdigris	White of eggs.
Oxalic acid or Salt of lemons Acetic acid Tartaric acid	Magnesia or Chalk.
Sugar of lead or Goulard	Glauber's salts or carbonate of potash, or carbonate of soda.
Barytes	Glauber's salts or Epsom salts.
Carbolic acid	Two tablespoonfuls of Epsom salts in a tumbler of water, or half a tumblerful of olive oil, or two tablespoonfuls of castor oil. Warmth.
Chloral	Emetic. Hot blankets, hot bottle, and rubbing. Pint of hot strong coffee as enema.

Mushrooms . . .	Emetic. Twenty drops of tincture of belladonna in water. Warmth.
Morphia (laudanum, opium, chlorodyne, soothing syrups, etc.	Emetic. Keep patient awake by every means. Hot and strong coffee repeatedly. No stimulants. Artificial respiration.
Phosphorus (not poison, matches)	Emetic. Half teaspoonful of fresh oil of turpentine every half hour; tablespoonful of Epsom salts. No oils or fats.
Prussic acid	Emetic. Any stimulant in any quantity by mouth or enema. Artificial respiration.
Strychnia	Emetic. Tannic acid in large quantities. Artificial respiration.
Turpentine	Emetic. Tablespoonful of Epsom salts, milk, white of eggs.
Chloroform	Emetic. Soda with water. Keep patient awake by every means.

If the antidote be not at hand, endeavour to excite vomiting immediately by a tablespoonful of mustard flour in a tumbler of water, or two tablespoonfuls of common salt in a tumbler of tepid water (repeating either dose quickly if the first has no effect), but still procure and administer the antidote as speedily as possible. As an additional precaution a doctor should also be summoned immediately.

POOR DIET

The term " poor " when applied to diet relates rather to the quality than the quantity of the food taken. Diet is poor when it consists of articles possessed of very little nutrient principle and this little of the lowest kind. It may more especially be regarded as poor, when these articles are out of condition and of inferior or bad quality; as, for example, when watery, ill-prepared potatoes, damaged grain, or a large proportion of succulent autumnal vegetables are to a great degree relied upon as sustenance. Poor diet must be distinguished from simply low diet ; although, like the latter, it powerfully tends to reduce and keep down the system : instead of being, like it, conducive to health, it is a fruitful and almost certain source of disease, The term " poor diet " is sometimes employed, by comparison, in those cases in which a person, who has been accustomed to nutritious articles of food, is reduced to those which, without being unsound of their kind, are nevertheless possessed of very little nutritive power. It is often important to warn those whose health requires that they should be put upon low diet, against confounding it with the poor diet of which we have last spoken, as well as the danger of their oppressing their stomach in respect of quantity, whilst they scrupulously attend to the reduction in quality.

POTT'S FRACTURE

In Pott's fracture the fibula or outer bone of the leg is broken about three inches above the ankle, while the tip of the internal malleolus is also broken off. The tendency of the muscular action in this fracture is to draw the foot outwards and upwards and, to counteract this influence, a splint is placed on the inner side of the leg and well padded in the middle so as to permit of the pad acting as a fulcrum over which the foot can be drawn and its outward tendency to displacement counteracted.

POULTICES

A poultice, unlike a mustard-plaster, should be made larger than is absolutely necessary. It is intended to allay pain and inflammation and, as the pain probably extends beyond the inflamed part, a large poultice should be made to cover the surrounding surface. Spread it on a stout piece of cotton. Let it be from half an inch to an inch thick. Do not pat it down into a hard pudding. Make the edges as thick as the middle, or else they dry rapidly and are painful. Cover the surface of the poultice with a very thin gauze or muslin, or bit of mosquito-bar, or lace, so that it shall not stick to the surface and can all be removed at one time. In applying to the chest, do not cover the nipples if it can be avoided. Have the cloth on which it is spread large enough to double up all round the four sides, over the edges of the poultice, that it may not ooze out. Have everything ready and the patient's clothing unfastened, before you bring the poultice to the bed. Apply it immediately as warm as it can be borne. Cover it with oil-silk or rubber-sheeting and then a flannel. Keep it firmly fastened to the place it is intended to cover and renew it before it is cold. Its purpose is defeated if it becomes a stiff cold paste, or if it is allowed to slip about in an unsteady way. Linseed is better than anything else for an ordinary poultice. When oil is needed to spread over the surface of the poultice, use vaseline : it does not become rancid. Never use milk in making poultices ; it quickly becomes sour and is of no value in itself. A good and very simple poultice can be had from a piece of soft, thick sheet lint, doubled, squeezed out in hot water, laid over the part, and covered with a larger piece of rubber-sheeting, which is useful for such purposes and is very thin.

Bread Poultice.—Put half a pint of boiling water over a sufficient quantity of bread-crumbs ; stir until a soft mass is obtained; spread about half an inch thick over a large cloth and apply. Half an ounce of laudanum can be poured over if the pain to be relieved is great. If laudanum is used, care must be taken that the skin is not broken.

Charcoal Poultice, No. 1.—For a charcoal poultice take two ounces of bread-crumbs and soak for ten minutes in ten ounces of boiling water, then mix and add gradually half an ounce of powdered wood charcoal and one and a half ounce of linseed meal. The whole should be well stirred together and then spread and applied in the ordinary manner.

Charcoal Poultice, No. 2.—Another method adopted in making this poultice is to take half an ounce of wood charcoal, two ounces of linseed meal and boiling water sufficient to make a poultice.

Chlorinated Soda Poultice.—A chlorinated soda poultice is made like a linseed meal poultice, but consists of two parts of linseed meal to one of chlorinated soda mixed with boiling water.

Hemlock Poultice.—Take two ounces of hemlock leaves in powder, six ounces of linseed meal and a pint of boiling water. Mix the linseed meal with the powdered hemlock and add gradually to the water, keeping up constant stirring while doing so. This poultice was more frequently used formerly than now and was applied because of its sedative and soothing qualities to alleviate the pain of cancerous and other malignant sores. The best poultice is that which is made of fresh hemlock leaves bruised ; the dried and powdered leaves are apt to be inert.

Irish Moss Poultice.—In Paris, carrageen, or Irish moss, has been used as a substitute for linseed meal and other kinds of poultices, with good results. It does not ferment and remains moist and inodorous for sixteen or eighteen hours, when properly prepared by chopping and soaking.

Linseed Meal Poultices.—That which is of most frequent use is a poultice made of linseed meal. The meal should be got from those who can guarantee its being well prepared, as much that is sold in the shops is objectionable, from this quality being wanting ; and, unless it is good, it may occasion considerable irritation of the skin, giving rise to redness and eruptions. Linseed meal derives its emollient properties from two principles which it contains—the one an oil and the other a mucilaginous substance. By the presence of the latter the water is retained in the poultice ; while, by the presence of the former, the entrance of air is prevented and heat retained. Besides this, the oil exercises a soothing influence upon the part to which it is applied. It is very common, in making a linseed meal poultice, to pour boiling water on the meal and stir it up till it is of the proper consistence ; but poultices so made are seldom homogeneous and, in consequence, do not retain either heat or moisture well. The poultice, to be properly made, should be boiled till it is of the consistence of a thick pap, when it will be found to retain heat and moisture longer and answer the purposes for which it was intended better, than if this precaution is neglected. Instead of using water alone, milk and water may be employed, or decoctions of mallows, flax-seed, etc., by which the emollient properties of the linseed meal are increased. The emollient action of the poultice may be further increased by smearing the surface with olive oil or lard, which have the additional advantage of allowing the removal of the poultice with the greatest facility. Many people are in the habit of interposing a piece of cloth between the poultice and the part to which it is applied. As this is unnecessary, it had better be dispensed with, or, if anything is made use of, let it be of the lightest possible material, such as a piece of gauze. In order to prevent evaporation and retain heat longer, a piece of oiled silk may be placed externally to the poultice. Care should be taken in placing the poultice to see that there is no chance of its slipping and the surface being left bare.

Yeast Poultice, No. 1.—A yeast poultice is made by mixing a pound of flour or linseed meal with half a pint of yeast. The mixture is to be heated and carefully stirred.

Yeast Poultice, No. 2.—Take of beer yeast, ten ounces ; flour, sixteen ounces. Mix and expose the mass to a gentle heat till it rises, when it is ready for use. The yeast poultice acts as a stimulant and antiseptic and is employed with benefit in ill-conditioned or badly-smelling sores ; also in cases of mortification to destroy fœtor and assist in removing the dead tissues.

Besides the poultices mentioned there are others in very frequent use, such as those made from bread and water, oatmeal, arrowroot, bran ; and others, which are much less employed, made from carrots, potatoes, onions, sweet apples, etc.

In addition to these there are poultices more strictly medicated, such as those made of foxglove or hemlock. As these last may prove dangerous if carelessly employed they ought only to be made use of when ordered by the doctor.

POWDERS

The following are recipes for a few powders that can be regarded as being useful and safe for family use :—

Aperient Powder.—Take of grey powder, two grains ; bicarbonate of potash, fifteen grains ; powdered rhubarb, ten grains. Mix. A good aperient powder in cases of biliousness when the tongue is coated with yellow-brown fur.

Astringent Powder.—Take of compound powder of ipecacuanha, three grains ; compound powder of cinnamon eight grains. Mix them. This is an astringent powder of great value in looseness and flux. It tends to relax the skin at the same time that it acts as an astringent upon the bowels and is effectually employed to allay pain in stomach complaints. It may be repeated every three or four hours.

Powder to allay Sickness arising from Irritable condition of Stomach.—Take of sub-nitrate of bismuth, ten grains ; bicarbonate of soda, ten to fifteen grains. Mix. To be taken every three hours till the sickness is relieved.

Purgative Powder.—Take of calomel, two grains ; jalap in powder, rhubarb root in powder, of each five grains. Mix. To be taken in any convenient vehicle.

Sweating Powder.—Take of compound powder of ipecacuanha (Dover's Powder) twelve grains. To be taken at bed-time in a little gruel and a tea-cupful of warm gruel administered half an hour afterwards. This is a good remedy in a case of ordinary head cold.

Worm Powder.—Take of santonin one half to three grains for a child according to age. To be given in the morning in a little milk on an empty stomach and a dose of castor oil administered three or four hours afterwards.

The doses of the medicines contained in the preceding prescriptions are those proper for adults, unless when otherwise stated, and in proportioning the dose to the age of a child, it may be generally assumed that a patient of fourteen years of age will require about one-half the quantity proper for an adult ; seven years old, one-third ; three years, one-sixth ; one year, one-twelfth.

PREGNANCY

There is no time when more care is necessary on the part of a woman than during the first few months of her married life. If strict attention has been paid prior to marriage to the carrying out of those hygienic rules so conducive to the maintenance of health, there is little fear that they will be neglected. They should, however, be even more carefully attended to by the young wife, as their violation now brings with it more serious consequences than formerly it might have done.

PREGNANCY, CHANGES IN ABDOMEN DURING

During the early stage of pregnancy no appreciable enlargement of the abdomen takes place and in some cases it is even less prominent than in the unimpregnated state. The reason of this is that the womb, being heavier than usual, at first sinks in the pelvis instead of rising. After the third month, however, a swelling manifests itself of a rounded form at the lowest part of the belly, which goes on increasing until it occupies the whole abdominal cavity. As it ascends it pushes the navel before it, causing it to be on a level with the surrounding skin, and, towards the end of pregnancy, to project beyond it as a distinct prominence.

PREGNANCY, CHANGES IN BREASTS IN

About the second month of pregnancy, certain well-marked changes may be observed taking place in the breasts. The patient generally complains of a feeling of fulness and tightness which she has not before experienced and a sensation of tingling or pricking is also felt. If the breasts of a woman who is thus suffering are examined, they will be found to be hard and knotty to the touch ; the nipple will be seen to be more prominent, and the flesh-coloured ring by which it is surrounded, called the "areola," will be found to have assumed a much darker hue and to have increased considerably in size.

PREGNANCY, CLOTHING DURING

Throughout the whole period of pregnancy the clothing must be warm. More danger is likely to result at this time from insufficiency than from excess. But while the clothing must be warm, it should as far as possible combine the quality of lightness as well. For this purpose no material answers so well as flannel and with it the pregnant woman should be clothed from head to foot. The clothing must be adapted to her state and the various articles of dress worn must be made sufficiently loose to admit of the free expansion of the growing womb and must not press injuriously upon the breasts. If stays are worn, they should be made so as to admit of perfect freedom of movement and anything like an attempt at making them fit neatly, at all times hurtful, will prove much more injurious now. So great a necessity was it deemed by the Romans to have the garments loose at this time, that they compelled their women when they became pregnant to lay aside the girdle. Tight clothing during pregnancy, by pressing injuriously upon the womb, leads to the imperfect development of the child and may give rise to miscarriage.

PREGNANCY, CONSTIPATION IN, TREATMENT OF

Whenever the bowels become sluggish, let attention be paid to diet and daily exercise. If the diet has been faulty, let it be remedied, and let such articles as oatmeal porridge, ripe fruits, stewed apples, prunes, figs and the like be eaten. If the daily amount of exercise has not been taken for some time, let it be resumed, unless there be anything to prevent this from being done ; let the patient move actively about the house, doing a moderate amount of work daily and let outdoor exercise be taken. Many cases of incipient constipation may be checked by attention to these things. If, however, the condition of the patient is more advanced and the bowels have not been moved for several days, diet and exercise alone may prove insufficient to remedy the disorder ; when this is the case, recourse must be had to the employment of certain medicines. Of these, the best are such as cause least irritation. All violent medicines must be carefully guarded against during pregnancy, as they tend, from the disturbance to which they give rise, to produce miscarriage. One of the best medicines to which recourse may be had during pregnancy is castor oil. In its action it is certain and, as it causes no irritation, it is free from an objection which attaches to many medicines, rendering them unfit to be taken at this time. The dose may vary from a dessertspoonful to a tablespoonful. Many people, owing to its disagreeable taste, have an aversion from castor oil. This, however, may be greatly lessened if the oil be floated upon warm milk, coffee, or orange juice. It may also be made into an emulsion with yolk of egg or mucilage. Another mild aperient medicine and one which answers very well during pregnancy is the Friedrichshall water, a small quantity of which taken the first thing in the morning will gently move the bowels. A teaspoonful of the confection of sulphur taken occasionally when required in a little milk or water will prove very useful as a mild laxative. Better, perhaps, than medicine for the cure of constipation is an occasional enema of simple soap and water or gruel, with one or two tablespoonfuls of castor oil in it. The quantity should be sufficiently large to stimulate the bowel and for this purpose a pint of fluid is necessary. Many women have an objection to the employment of the enema for the relief of constipation and will rather hurt themselves with purgative medicines than have recourse to it. This objection is altogether unfounded. If a proper instrument is used, it will give rise to little trouble ; it can be employed by the patient herself (though this is not desirable) and in its action is painless. Besides, when purgative medicines have been taken by the mouth for some time, they lose their effect and the dose requires to be increased. Frequently, when the bowels have been allowed to get into a constipated state, hardened masses of fæcal matter accumulate in the gut and, by causing irritation of the mucous membrane, give rise to an increased secretion, when the patient supposes she is suffering from diarrhœa and frequently employs astringent medicines for the purpose of checking it. She also suffers from headache, a feeling of fulness over the abdomen and indigestion. An enema of soap and water or a tablespoonful of castor oil with fifteen drops of laudanum will answer best for the correction of this condition. Frequently, when the patient is careless in regard to the state of her bowels during pregnancy and fæces are allowed to accumulate, they form hardened masses which give rise to the spurious pains from which many women suffer for some time previous to their confinement and which prove very annoying. Besides, labour may be greatly retarded by an overloaded state of the bowels and, as the danger both to mother and child increases with delay, the risks become greater. That pregnancy will be a state of least departure from health and that labour will in all probability be shortest and safest, in which along with attention to other things, the patient has not been negligent of the state of her bowels.

PREGNANCY, CRAMP IN LEGS IN

From the pressure which the enlarged womb exercises upon the nerves which pass to the leg, disagreeable cramps are experienced by the patient. For the relief of this painful condition, apply friction with the naked hand, with camphorated oil or with a liniment composed of laudanum and opodeldoc, in the proportion of one part of the former to two of the latter. Movement also may remove it, so that the patient should endeavour to walk about the room when the spasm comes upon her. Sometimes, instead of cramps in the legs, the patient suffers from a similar affection of the stomach and bowels. In this case the treatment to be adopted is to immerse the feet in hot water and administer a draught consisting of twenty drops of laudanum in some camphor water. Hot fomentation should also be applied to the affected parts. Should this affection prove troublesome by its frequent occurrence, much benefit may be derived by the employment, every night before going to bed, of a warm sitz-bath. The patient should remain in it for ten or fifteen minutes.

PREGNANCY, DIARRHŒA IN

Although much less frequently met with in the pregnant woman than constipation, diarrhœa is nevertheless occasionally an accompaniment of this condition and, if very severe and allowed to go unchecked, may lead to miscarriage. When diarrhœa thus attacks the pregnant woman, attention should at once be directed to the diet and only those things eaten which are mild and unirritating. The quantity of food taken should not be large. Of those articles of diet suitable in such cases, milk must be placed first. It may be given either alone, or with rice, sago, arrowroot, or tapioca. When the irritation has partly subsided, some chicken tea may be given, or an egg lightly boiled. Later a piece of chicken with bread may be given with advantage and gradually the ordinary diet be resumed. Should the diarrhœa be of the kind mentioned as occurring with an overloaded state of the bowels, a different line of treatment must, of course, be adopted. It would be useless endeavouring to check the diarrhœa in such a case so long as the cause which gave rise to it remained in operation, so that the first thing which requires to be done is to have the bowels thoroughly cleared out by means of an aperient. For this purpose nothing will answer better than a dose of castor oil along with fifteen or twenty drops of laudanum, or an enema of soap and water. When the bowels have in this way been relieved, the diarrhœa will generally be found to cease of itself. The diet should be mild and unstimulating and all irritating articles of food must be carefully avoided. When from the state of the tongue the stomach appears to be deranged, a few powders of rhubarb and magnesia will prove useful. No attack of diarrhœa should be passed over lightly by the pregnant woman ; and, if it is not checked by careful regulation of the diet and the administration of such articles as we have mentioned, medical assistance must be sought. During the continuance of diarrhœa warmth is very essential and for this purpose flannel should be worn next the skin. A flannel roller wound round the abdomen will answer well. The feet also must be attended to and kept warm.

PREGNANCY, DURATION OF

When a woman becomes pregnant, she is naturally anxious to know when she may expect her confinement. The usual methods of calculation are based upon the average duration of human gestation, which is 280 days, or forty weeks. As, however, a woman may carry beyond the 280th day, or may be delivered short of it, any method of calculation is necessarily only to be regarded as approximate, it being perfectly impossible to fix the time of delivery to any one day. Frequently, also, a woman forgets the date of her last monthly illness and, in the case of those who become pregnant while nursing and in whom menstruation has not yet returned, we are deprived of a very important factor in calculating the time when a confinement may be expected to take place. In such cases the calculation must be made from the time of quickening. Many different methods of calculation are in use among medical men, of which two only need be mentioned here. The first is the one which goes by the name of Naegele's method and consists in adding seven days to the beginning of the last menstrual period and counting back three months. Thus, supposing a woman ceased to menstruate on March 3, 1908, by adding 7 days and subtracting 3 months, or 90 days, we get December 10 of the year 1908 as the probable day of confinement. The second method is that recommended by Dr. Matthews Duncan and consists in ascertaining the day on which the female ceased to be poorly, or the first day of her being again well :—" Taking that day nine months forward as 275, unless February is included, in which case it is taken as 273. To this add three days in the former case, or five, if February is in the count, to make up the 278. This 278th day should then be fixed as the middle of the week, or, to make the prediction more accurate, of the fortnight in which the confinement is likely to occur."

PREGNANCY, EXERCISE DURING

For the maintenance of good health during pregnancy, fresh air and exercise are necessary. Outdoor exercise should be taken daily and continued till as late a period as can conveniently be done. The best form of exercise is walking, but this must not be indulged in to excess. A woman must not at this time fatigue herself by taking too long walks ; she should rather go a shorter distance and more frequently in a day than go so far that she is unfit for anything on her return home. As the later months of pregnancy are reached and specially towards the close, she naturally feels unable for much active exercise and the amount should then diminish to suit her requirements ; but as long as it is practicable she should be in the open air some part of the day.

PREGNANCY, FAINTING IN

During the early months of pregnancy a fainting condition is not infrequent ; but the time of all others when it is more particularly met with is about the period of quickening. It may occur with greater or less frequency ; in some, giving rise to little annoyance, while in others, by recurring several times during the same day, it proves a source of great trouble to the patient.

PREGNANCY, FOOD AND DRINK DURING

Many women when they become pregnant, forgetting that they have at the same time, ceased to be unwell, imagine that the system requires an increased amount of nourishment and, acting upon this erroneous idea, overload the stomach and do themselves an injury. If a woman has been careful previous to her marriage in regard to her diet, she will find little to alter now. The food taken during the early months of pregnancy should be light and wholesome, while being at the same time easy of digestion. Owing to the irritable state of the stomach which prevails at this time, great caution should be exercised in avoiding those things which are likely to disagree—such as pastry, made dishes, etc. Simplicity in diet combined with nutrition should be aimed at rather than gratification of the palate. The amount of food taken during the early months of pregnancy need not be greater than formerly. In the later months the irritability of the stomach passes away and the demands of the system become greater ; but at this time, owing to the patient being restricted in her exercise, the expenditure of energy is less. The quantity of food taken at any one time should not be increased, but the intervals which elapse between one meal and another may be diminished. Fish, eggs, chicken, a moderate allowance of meat, light puddings, milk, vegetables and ripe fruit are all suitable articles of diet during the period of pregnancy. Especially towards the close a woman will find stewed prunes and figs, roasted apples, oranges, etc., very wholesome and agreeable and, in addition, having a gentle laxative effect upon the bowels, they greatly assist in overcoming that tendency to constipation which is frequently so troublesome at this time. If the pregnant woman has longings for particular articles of diet, unless these are likely to prove injurious, they may be gratified ; but all longings for what is simply absurd and could not, if gratified, prove other than prejudicial, must not be yielded to. A cup of coffee taken in the morning some time before rising will often prove of great use in removing that disagreeable feeling of nausea from which women are so liable to suffer during the early months of pregnancy. It should be remembered by all that every error in diet which proves hurtful to them is not confined in its effects to themselves, but is shared in equally by the infant in the womb ; and if young women desire to be the mothers of strong and healthy children, they must endeavour to avoid everything that is calculated to prevent the attainment of this end. There is a practice which it is to be regretted is only too prevalent among pregnant women, namely, the indulging in alcoholic drinks and stimulants of various kinds under the impression that their condition demands it. They are under the belief that they will assist in relieving the irritability of stomach from which they suffer during the early months, or the feeling of faintness, debility and languor that attacks them later. It may be said, however, that the less the pregnant woman has to do with stimulants of any kind, the better will it be both for herself and her offspring. Many cases indeed might be adduced to show how habits of drinking have been formed in this way and to prove the injurious influence which this indulgence has upon the children that are born.

PREGNANCY, HEADACHE IN

When the stomach and bowels have been neglected, the patient frequently suffers from headache. In such cases the tongue will be found foul and loaded and there will generally be acidity as well. This condition is to be remedied by attending to the cause which has given rise to it. Some mild aperient must be administered until the tongue becomes again clear, when the headache will generally be found to disappear as the state of the stomach and bowels improves. It may, however, be more neuralgic in its nature and, if so, a different line of treatment will be called for. In this case tonics must be given, such as quinine and iron. Should the headache persist and not yield to such treatment, medical advice had better be obtained.

PREGNANCY, MENTAL PECULIARITIES IN

Certain mental peculiarities are far from uncommon in the pregnant woman ; thus, many women who exhibit the mildest and most amiable of tempers before marriage, on becoming pregnant undergo a remarkable change in this respect, becoming at this time passionate, fretful and irritable. On the other hand, pregnancy may exert a beneficial influence upon a woman and many who were before fractious and ill-to-do-with have their tempers frequently altered for the better on being with child.

PREGNANCY, PAIN IN THE SIDE IN

Among the many neuralgic affections from which the pregnant woman is apt to suffer, frequent pain in the side is not the least annoying. It does not come on till the later months of pregnancy and is due to the pressure of the gravid uterus upon the liver. The pain generally comes on in the after part of the day and may be so severe as to make the patient think she is suffering from some inflammatory attack. The state of the pulse and temperature, however, points to the true nature of the affection. In this case both pulse and temperature will be found normal ; whereas, if the pain were inflammatory in its nature, the pulse would be quickened and the temperature raised. It is frequently very difficult to alleviate this distressing symptom. The patient should apply hot fomentations to the part. A belladonna plaster will frequently give relief. Friction with liniments containing opiates is also very valuable.

PREGNANCY, PALPITATION IN

Frequently during pregnancy the woman becomes greatly alarmed by finding herself the subject of occasional attacks of palpitation or beating at the heart. There will be little cause for anxiety if this condition has not been suffered from before and only attacks the patient for the first time now. It may be due either (1) to the heart sharing sympathetically in the general disturbance of the system or (2) to the pressure of the enlarged womb interfering with the proper action of the heart. During the attack, should it be sufficiently severe to require treatment, the best thing to give will be a teaspoonful of sal volatile in a little water, which may be repeated in four hours if necessary. Sometimes a patient is awakened during the night with a feeling of impending suffocation. She feels as if sufficient air were not entering the room and requests that the windows be thrown open that more may be admitted. Everything must be done in such cases to soothe the patient. It is a mistake to fly to stimulants and administer them in the reckless manner that is frequently done when a woman is thus seized. They are unnecessary and generally do more harm than good. What is wanted is to keep her quiet and as free from excitement as possible, when the attack will gradually pass off and leave the patient quite well again.

PREGNANCY, PILES IN

This is another affection from which the pregnant woman is liable to suffer and one which gives rise to considerable pain and annoyance. It is an enlargement of the veins at the lower part of the bowel, to which the name of piles or hæmorrhoids has been given. This condition results from pressure upon the veins. A congested state of these vessels is first set up which, unless relieved, will ultimately give rise to piles. The mechanical pressure exerted by the enlarging womb is thus a frequent cause of this condition. Piles sometimes occur during the early months of pregnancy, while the womb is yet in the pelvic cavity, and disappear about the fourth or fifth month, when it rises into the abdomen. Another frequent cause of piles is the accumulation of hardened fæces in the lower bowel. When the condition of the bowels has been neglected for some time, the hardened masses which accumulate in the lower part of the gut give rise to irritation and, by the congested state of the vessels to which this irritation gives rise, piles are produced. Their presence creates a disagreeable feeling of heat and pain and much uneasiness is caused on the patient attempting to walk, owing to the irritation to which the movements of walking give rise. They frequently become congested and very painful. On their presence being detected, no time should be lost in endeavouring to get them removed. If the bowels have been acting sluggishly, attention must be paid to them ; and if hardened masses have been allowed to accumulate in the lower bowel, no relief will be afforded till they are removed. For this purpose, a gentle dose of castor oil may be taken, or the patient may use instead an enema of soap and water or gruel, with one or two tablespoonfuls of castor oil added. A very good laxative is compound liquorice powder. Of this, one teaspoonful should be taken for a dose. The confection of sulphur given in similar doses is another preparation of much value. If the piles are very painful, they should be fomented with warm water every night at bedtime, or with an infusion of camomile flowers and poppy-heads.

PREGNANCY, PRURITUS IN

Along with leucorrhœal discharge there sometimes exists a very painful and distressing condition or irritation of the external parts, to which the name of pruritus has been given. This irritation may, however, come on independently of any discharge and, by the itching to which it gives rise, is a source of great annoyance to the patient. It sometimes appears to be neuralgic in its origin, while at other times it may be traced to the presence of small thread-worms in the lower bowel. If due to the latter cause, suitable means must be employed for their removal, such as enemata of salt and water every morning. Frequently, however, there is no cause that can be discovered to account for the itching.

PREGNANCY, PRURITUS IN, TREATMENT OF

This consists in the maintenance of strict cleanliness and the application of such lotions as Goulard's extract largely diluted with water. Should this not answer, a lotion composed of powdered borax and water, in the proportion of two drachms of the former to ten ounces of the latter, should be employed. When the irritation is great and the patient unable to obtain sleep in consequence, bromide of potassium, given in twenty or thirty-grain doses at bedtime, will frequently lessen the irritability and soothe the patient to sleep. The diet must be light and nutritious. Stimulants must be avoided and the bowels regulated by the administration of mild laxatives when necessary.

PREGNANCY, SALIVATION IN

The discharge of a large quantity of saliva from the mouth is an occasional accompaniment of pregnancy. It is most generally met with during the early months, but is not confined to these. The quantity discharged varies, in some cases amounting to pints or even quarts in a single day. As mercury gives rise to a profuse discharge from the salivary glands, it may be as well to distinguish between the two. That due to the administration of mercury is accompanied by tenderness of the gums and a peculiar fœtor of the breath. These are both absent in the salivation which occurs during pregnancy. The gums remain perfectly normal and the breath has no fœtor. Frequently this excessive flow of saliva is attended with acidity of the stomach.

PREGNANCY, SICKNESS DURING

On getting up in the morning from the recumbent position, most pregnant women suffer from a certain degree of nausea or even sickness. The period when this symptom manifests itself is generally a few weeks after the occurrence of conception. It may, however, appear earlier, in some cases coming immediately after the woman has conceived, or its appearance may be delayed till the last few weeks of pregnancy. It may also last throughout the whole period of pregnancy. This morning sickness is due to the sympathy which exists between the stomach and the womb, and is entirely reflex in its nature.

PREGNANCY, SLEEP DURING

A pregnant woman generally requires more sleep than usual and, owing to the naturally irritable state of her nervous system at this time, it exercises a soothing influence upon her. Should difficulty in breathing comfortably be experienced in lying down, or should she suffer from a feeling of suffocation, as frequently happens during the later months of pregnancy, the shoulders and back ought to be well supported with pillows and, if these do not suffice, a bed chair may be employed.

PREGNANCY, SWELLING OF THE FEET AND LEGS, AND VARICOSE VEINS IN

By the pressure of the enlarged womb upon the venous trunks, the free circulation of the blood in the veins of the lower extremities is hindered. This is frequently seen during the later months of pregnancy. The return of the blood being thus impeded, the veins of the legs enlarge and become varicose. This condition most frequently manifests itself in those who have borne many children. In consequence also of this mechanical pressure, the feet and ankles are occasionally found to swell. This usually occurs towards night and generally disappears before morning. When the enlargement of the veins of the legs is not very great and when the vessels are not hard and lumpy, the administration of mild aperients and the application of a calico bandage to the limb will generally suffice. The bandage should extend from the foot and must be applied with equal pressure over every part of the limb. When the veins are hard and lumpy and present a knotty character, this treatment may be insufficient and then recourse must be had to the elastic stocking and to occasional rest in the recumbent position. Should the veins become painful and inflamed, the patient must at once lie down, apply warm fomentations to the part and send for the doctor. An occasional and very troublesome condition is met with in the form of an enlargement of the veins of the external parts. This affection is not confined to those who have already given birth to children, but may also be met with in those who are pregnant for the first time. They complain of a swelling at one or other side, which goes on enlarging as pregnancy advances and ultimately becomes very troublesome, interfering with progression and in other ways giving rise to annoyance. When a woman suffers from this condition, she should take frequent rest in the recumbent position and should wear an abdominal belt. Beyond this, little can be done and the condition will pass away of its own accord as soon as labour is over and the pressure which gave rise to it has been removed. Care must be taken not to expose these varicose veins to the risk of external injury, as when ruptured they bleed most profusely and the bleeding thus set up, unless checked, may cause the patient's death.

PREGNANCY, TOOTHACHE IN

The toothache that often causes so much pain and annoyance in pregnancy is more frequently a form of neuralgia, depending on the irritable state of the nerves of the teeth, the nerves sharing in the general irritability of the system. It is curious that the husband, too, sometimes suffers from neuralgia during this period, probably due to more or less unconscious anxiety about his wife. The toothache of pregnancy must not be treated as toothache proper unless it is obviously caused by a decayed condition of the teeth. Extraction of the teeth should not be resorted to if the woman is at all weak, excitable and nervous.

PREGNANCY, VENTILATION DURING

Too much care cannot be taken to see that the bedroom occupied by the pregnant woman is properly ventilated. If this is disregarded the sleep obtained will be unrefreshing and the influence upon the body will be of a most unhealthy kind. The windows should be thrown open as soon as the sleeping apartment is left in the morning and the mattress and blankets should be thoroughly exposed to the air. Frequently, on going into a badly-ventilated bedroom from the outer air one is conscious of a close, stuffy smell, far from agreeable and anything but healthy ; and yet those who occupy the room are unconscious of it and we, if we remain sufficiently long in it, have our sense of smell so blunted that we fail to perceive the objectionable odour that arrested our attention at first.

PREGNANCY, VOMITING, EXCESSIVE, IN

Nausea or sickness is an ordinary symptom by which, along with others, the presence of pregnancy may be determined. Occasionally, however, instead of the morning sickness, as ordinarily understood, the pregnant woman is the subject of excessive vomiting which, if allowed to go on unchecked, may seriously impair her general health and give rise to miscarriage. Morning sickness may frequently be greatly relieved by the patient taking a cup of coffee the first thing when she awakes in the morning and before she leaves bed. Instead of this a cup of milk, with some soda water added, may be given and frequently proves very beneficial. A walk before breakfast is also to be recommended as useful for this purpose. Usually the condition calls for little active interference beyond the simple means just recommended. It generally passes off, in those cases where nothing has been done, about the period of quickening and, leaving the patient as it does, about mid-day or earlier, permits of her obtaining sufficient nourishment throughout the remainder of the day without appreciable ill effect upon her system. The cases which demand prompt attention are those in which the nausea and vomiting instead of passing off about noon persist throughout the whole day. When this occurs, unless it is attended to, a serious state of inanition will be developed from want of nourishment and, unless means are employed to relieve the sickness, the health of the patient will become impaired. If the sickness in the morning be great, generally fluid tinged with bile is vomited : while if it occur later, more solid matter from the food that has been taken is brought up. If the vomiting continue, the countenance becomes pale and haggard and the breath offensive and feverish symptoms manifest themselves, which, unless relieved, may pass on to a fatal termination. In the simpler cases of vomiting no medicinal treatment is required ; it will pass away in due time, leaving the digestive powers unaffected. Should the vomiting, however, be more severe and should bile be present in the vomited matters, indicating a deranged state of the digestive system in addition to irritability of the stomach, soda and bismuth may be had recourse to, ten to fifteen grains of each being taken three times a day, or confection of senna in doses of a teaspoonful. Should there be much pain over the stomach, the application of a few leeches and, after their removal, of strips of cloth dipped in laudanum will generally give decided relief.

PRESBYOPIA

(Greek, **pres′bus,** "old" ; **ops,** "eye").

Presbyopia, or old-sight, unless neutralized by short-sight, is of physical necessity universal with all of us who live beyond middle age. People of fifty-five or upwards are frequently heard to boast that they can read perfectly well without glasses. Professor Donders says of them : "Such people consider themselves a lucky exception. They are extremely proud of their sharp sight. The inquiry as to whether they are near-sighted is answered in the negative, with a smile of self-complacency." But when their distant sight is compared with the natural standard, it is invariably found to be deficient. The degree of the defect may be slight and they may be unaware of it, but it nevertheless exists. Old people who have been using glasses for twenty or thirty years, are sometimes surprised by a return of the ability to read without them and this is spoken of as "second sight" ; they have become short-sighted in consequence of a change that has taken place in the shape of the lens. Old-sight is simply a partial loss of the power to accommodate the eye to different distances. The first symptom of old-sight is a demand for brighter light and clearer print and at length, somewhere between the ages of forty and fifty, dim light and poor print become so universal that we are forced to admit that our eyes are at fault and to consult the optician. The proper time to begin using glasses is when it is no longer possible to read with perfect comfort without them. A contest with age is hopeless and it is the part of wisdom to yield to the first summons to surrender. A convex glass is used to supplement the failing power to increase the convexity of the lens and it is important that a proper glass should be selected. A common mistake of opticians is to begin with too strong a glass. People are apt to be pleased with such glasses, because by magnifying small print they make it unnaturally clear. It by no means follows, however, that the glass that may seem most pleasant on first trial is the one that will give the most comfort in a long evening's work. The same care should be exercised in increasing the power of the glasses as age advances ; it should be done with reference, not to any stated intervals, but to the progressive failure of accommodation. It is well for persons who read or write a great deal by day and night to use the stronger glasses in artificial light only and the old pair in the daytime. When the need of glasses is felt, spectacles should be at once used. It is foolish to do without them.

PRICKLY HEAT

This disorder, also called milliaria, is an acute affection of an inflammatory nature of the sweat-glands. It shows itself in numerous minute red points, slightly raised above the surface of the surrounding skin (papules) and in equally minute water-blisters (vesicles), which rise from a reddened, inflammatory base. These two forms may exist separately, or, as is more commonly the case, may co-exist. The disorder is not attended with marked constitutional symptoms other than the annoyance arising from the tingling and prickling which accompany the eruption. The points are separate, but they may be very close together and usually recur in patches of greater or smaller extent. Its commonest seat is in the trunk and neck ; but it not infrequently appears on the face and upper and lower extremities. In the natural creases of the skin it often becomes aggravated and gives rise to distressing raw surfaces. Its duration may be brief, or crop after crop may appear, and the trouble be thus prolonged during the continuance of hot weather. It occurs at all periods of life, but is most common in infancy and old age. Professor Duhring has observed that the papular form is more apt to show itself in the healthy and well-nourished ; the vesicular in those who are feeble or in poor health. The outbreak is sudden, without premonitory symptoms, and it frequently disappears and breaks out again abruptly, without discoverable cause. It is a disease of hot weather and is produced by heat. Young persons, fleshy persons and those who take much exercise and perspire excessively are not liable to it. Flannels and other irritating underwear and superfluous clothing produce it, when the external temperature is high. The disorder varies merely in intensity. In tropical climates it is of greater importance than in milder climates, where it is usually an insignificant malady, tending to speedy spontaneous cure upon the removal of the exciting cause—heat. The treatment is a very simple one. Irritating and stimulating applications of every kind are to be carefully avoided ; they tend to aggravate the symptoms and to prolong their duration. Measures to diminish and control perspiration are to be taken ; with diminished activity of the sweat glands, the symptoms tend to disappear with more or less promptness. In ordinary cases, light clothing, rest, a cool apartment, the occasional partial or complete exposure of the affected surface to the air, simple diet, limited quantities of fluid and a simple purgative, as a rule, work a speedy relief. Cool sponging is to be resorted to and the surface should be dried without friction with the towel. Lycopodium, or starch powder, oxide of zinc, mixed with these, may be lightly dusted over the surface. Internal remedies of a cooling or astringent character are sometimes needed. Where debility is present, or the ill-health of the patient has an influence in prolonging the disorder, measures designed to improve the constitutional condition are called for. There need be no fear of evil results from " driving in " the eruption. As long as hot weather continues, relapses are liable to occur.

PRISMATIC GLASSES

See Spectacles.

PROUD FLESH

Patients will frequently come to medical men to know if there is any proud flesh in their wounds. The fear of proud flesh is very general, but there is really nothing to be afraid of. When a wound is attended with loss of substance, it is gradually filled up by the growth of a cicatrix from the surrounding skin, by a process which is called granulation, from the grain-like surface it presents. The granulations sometimes rise above the level of the surface; and no doubt the term " proud flesh " was given to this appearance as a figurative term for a luxuriant or forward growth. There is nothing either bad or malignant, as it is called, in the elevation, but it is rather indicative of a complete and rapid repair. There are, it is true, complaints which are attended with what are named malignant fungous growths ; but they are happily very rare and not connected with the healing of common sores.

PRURITUS

Pruritus, in accordance with its actual meaning, is used in connexion with many diseases in which itching is a feature. Thus, eczema is attended with great pruritus, or itching, as are also certain other eruptions. But in the present sense it is spoken of as a disease, for in many instances we have pruritus without any outward lesions or eruptions on the skin, except those caused by scratching. Itching may be confined to certain parts of the body and become distressing beyond measure, sometimes resisting the most patient and most thorough attempts at its removal. In the main, however, itching is only a symptom and the cause should be investigated with great care ; for otherwise all treatment is very unsatisfactory. Thus, occasionally a case of scabies, or the itch, will remain long unrecognized and many futile attempts will be made to relieve the itching, which will be impossible of success until the parasite has been reached and destroyed

PRURITUS, TREATMENT OF

In regard to the treatment of pruritus, or itching, considerable care should be taken in the way of home management. In the first place, giving way to scratching provokes more itching and really increases the difficulty ; in the case of eczema it certainly prolongs the disease. Next, all irritating elements should be removed from itchy skin ; thus, wool is irritating and cannot be worn next the skin when thus affected. Again, much bathing and especially friction after it may greatly aggravate the trouble. In employing the local applications which may be suitable to the case, one may fail of relief from their imperfect use. If ointments are used, the under-clothing will often absorb a large portion of it and, if this is changed daily, or very frequently, the fresh garment removes it again and again. Whereas, if the material next the skin is allowed to become somewhat soaked with the medicament, it will not take up so much again and consequently more will soak into the skin. In using lotions, they should as a rule be allowed to dry into the skin before being wiped off. To do this over much of the body, care must be exercised not to catch cold ; for many of the evils which are charged to an eruption being driven in, are simply the results of a cold, contracted, possibly, while attending to local treatment. From what has been said of the causation of itching, it will be readily seen that no general directions can be given to the lay reader for its treatment. In no branch of medicine is an accurate diagnosis so requisite for successful treatment as in skin diseases. Popular remedies for itching, such as weak carbolic acid lotions, a few grains to the ounce, diluted vinegar or alcohol, bicarbonate of soda solution, a teaspoonful or so to the pint and the like, are all of some service.

PSORIASIS

(Latin, **pso'ra,** "itch").

Psoriasis, or dry tetter, is a very common skin disease, which comes far behind eczema and acne in frequency, forming only about one-fifteenth of the whole number of skin diseases. Psoriasis may affect persons of all ages, but is very uncommon in young children and seldom develops for the first time in persons over forty years of age. It is characterized by the presence of separate spots or patches of diseased skin, which are of a dull red colour and have on their surface (unless it has been removed) an abundance of white scales, which fall readily. Psoriasis has a very decided preference for the outer or extensor surfaces of the joints, as on the elbows and the fronts of the leg and elbow ; while eczema affects more commonly the inner, or flexor surfaces, as the bends of the elbows and knees. It not infrequently attacks the scalp and then gives rise to much scaling, being one of the causes of dandruff. The surfaces of psoriasis are never moist except when greatly scratched or irritated ; while eczema tends to show moist surfaces. Psoriasis rarely itches, whereas eczema seldom fails in this. The cause of psoriasis is somewhat obscure. Occupation does not produce it and it is only in a slight degree hereditary. Spring and autumn seem to favour it and it has followed nervous shock, mental emotion and depressing influences. It may attend abrasion or other injury of the skin. Irritating clothing must not be worn, nor should the perspiration from the skin be interfered with, nor the surface be chilled. Internal remedies such as arsenic, antimony, phosphorus, salicylate of sodium, bromide of potassium and others should only be administered under medical advice. Frequent tepid or alkaline baths or the free use of hot water and soap may be helpful. Of local applications mercurial ointments of moderate strength, or cade oil, or liquor carbonis detergens, or resorcin, or chrysarobin are likely to be beneficial. The last-named, however, must be employed with great caution, since it may dye the skin, hair, and nails, and never be used in the head, neck, trunk, or loins. The disease is not contagious, nor is it due to a parasite.

PTOMAINE POISONING

Ptomaine poisoning may result from the eating of meat or fish in a state of decomposition. It commonly occurs after the eating of sausages, pork pies, or tinned meat. The principal symptoms are violent colicky pains; vomiting and diarrhœa. Headache, great muscular prostration; and often a rise of temperature. These symptoms are usually followed by collapse. Emetics should be at once taken, followed by purgatives. One or two tablespoonfuls of brandy may be necessary in the case of threatening collapse.

PTYALINE. *See* DIGESTION.

PUERPERAL FEVER

This is a continued and contagious fever occurring in connexion with childbirth. It comes on within a week or ten days after confinement and must not be mistaken for " weed " or " ephemera," which is a harmless kind of milk-fever. Puerperal fever is a very dangerous disorder and it is one far easier to prevent than to cure. In some respects it is allied to erysipelas and those who have been attending such cases have at times given puerperal fever to their patients. Puerperal fever includes " septicæmia, pyæmia, septic peritonitis, septic metritis and other septic inflammations in the pelvis occurring as the direct result of childbirth." It is practically a dirt disease and was once the scourge of lying-in hospitals. With increased attention to the sanitary condition of these institutions and of buildings generally, the disease is scarcely ever heard of nowadays. There is, however, no doubt but that a parturient woman is in a very favourable state for the reception of poison germs of various infectious diseases, and it is absolutely incumbent upon the doctor and nurse to take the most scrupulous care not to convey the seeds of any disease to a confinement case. When puerperal fever occurs the drainage of the house should be examined.

There is headache, with shivering and rigor; there is a diminution of the supply of milk and the usual discharge lessens in quantity and even ceases. The temperature rises, the tongue is dry and coated and there are much thirst and prostration. No spots are, as a rule, observable on the skin, but in some cases there may be small petechiæ. The bowels are generally loose and the urine is turbid and contains blood or albumen. The mind, at first clear, soon becomes clouded and the mother will take no notice of her child; delirium, of a low muttering character, comes on, and death takes place generally from exhaustion or syncope.

Very little can be done when once the fever is well developed. The patient will, of course, be in bed in a cool, well-ventilated room, but without draughts. The diet must be light and nourishing and consist of milk, beef-tea, eggs and stimulants as required for each case. The chief part of the treatment consists in removing from the uterus any clots or portions of placenta or membrane which may remain there, and frequent syringing with disinfectant solutions. This should be done only by a medical man. The patient's strength must be supported as well as possible until the crisis is passed ; the treatment will be the same as that described under typhus.

PULMONARY ARTERY

(Latin, **pulmo,** "lung").

Connected with the top of the right ventricle of the heart is another tube, called the pulmonary artery, because it goes directly to the lungs. It is also a large tube and you could easily put your finger through the opening with which it communicates with the right ventricle. And if we look at the left auricle, we shall find there are two or more large veins which pass into it. On tracing these veins, we find they come from the lungs; in fact they are the tubes which convey the blood to the left side of the heart directly from the lungs.

PULSE

(Latin, **pul'so,** "I beat").

If the finger be placed upon an artery, what is known as the pulse may be felt : this is because the elastic artery dilates with each beat of the heart at regular intervals. The pulse does not quite correspond to the beat of the heart in time, but occurs just after it and, the farther the artery from the heart, the longer the interval. It follows that the pulse will be quick or slow, regular or irregular, according to the action of the heart at the time and therefore it is useful as a guide in many diseases. Dr. Spenser Thomson has said that the average pulse of a healthy man in the prime of life may be taken as beating 72 times in the minute ; but from this average there is every possible variation and, even in the same person, the pulse varies greatly, according to the period of the twenty-four hours, the time of meals, the posture and even physical exercise, mental emotion and external temperature. In some persons the pulse is always quick, ranging at 90, or even more ; in others it is slow, perhaps not exceeding 40 beats in the minute. Age influences greatly the frequency of the pulse. The following is the table drawn up by M. Quetelet :—

Age.	Average of pulsations per minute.
Birth	136
5 years	88
10 to 15	78
15 to 20	69
20 to 25	69
25 to 30	71
30 to 50	70

According to other observations, the pulse in many children is found not to be more frequent than it is in adults ; as a general rule, however, it is so. It is, moreover, a generally received opinion that the pulse of the aged is slower than that of the young ; the reverse is the fact. The radial artery at the wrist is most convenient for counting the pulse. This is situated about an inch above the wrist-joint of the thumb.

PULSE, HEALTHY

Variation from a healthy pulse does not consist simply in an increase or decrease in the number of pulsations in a minute. The qualities to notice are the frequency, regularity and fulness. A healthy adult pulse beats steadily and evenly from seventy to seventy-five times a minute. The number of the pulsations is affected by the position of the body, being more rapid in standing than in sitting and in sitting than in lying down. Its regularity may be interfered with in two ways —either the motions of the artery are unequal in number and force, a few beats being from time to time more rapid and more feeble than the rest, or a pulsation is now and then dropped out; the pulse intermits. These irregularities may be caused by disease within the head, or heart, or stomach, or may result from debility which preludes death. The fulness of the pulse is determined by the sensation given to the finger by the blood as it passes through the artery. With young children it is extremely difficult to ascertain accurately the number of pulsations in a minute and the important things to notice will be the regularity and fulness which are more easily discovered.

PULSE OF PATIENT, OBSERVATION OF

In speaking of the pulse it is not only meant that the number of beats should be recorded; this can be very easily learned; but there are other points in connexion with the pulse which those in attendance upon the sick would do well to make themselves familiar with and from which much true knowledge and clearer insight in regard to a case can be obtained. Thus a pulse is sometimes found to intermit. The number of intermissions and the period of their occurrence should be carefully observed and noted down. In one pulse a beat may be wanting in every six or seven pulsations, or you may have a series of beats all succeeding each other in perfect regularity, followed by a series in which the pulsations are more or less irregular. Again it should be noted whether the pulse is hard and raises forcibly the fingers with which it is being felt, or whether it is soft and compressible. There are other peculiarities in connexion with the pulse which should also be learned. Thus in aneurysm the character of the pulse may be described as "splashing." When the contraction of the left ventricle of the heart is prolonged and forcible, it gives rise to a "full" pulse; that is to say, to a pulse the volume of which is greater than usual. Fulness of blood, technically called plethora, also gives rise to this kind of pulse, whereas anything which causes a general deficiency of blood throughout the body gives rise to a pulse which is termed small. Thread-like or wiry is a term which is applied to a pulse when it is very small. In acute inflammations, or where there is risk of hæmorrhage, the pulse has a peculiar throb. These different characters of the pulse can only be learned by careful observation at the bedside; but to know them is of great value to all who are in attendance on the sick. In taking the pulse of a patient, the fore and middle fingers of the right hand should be made use of and the number of beats counted by means of a watch having a seconds hand. The pulse of a woman beats more rapidly than that of a man. During sleep the pulse beats less rapidly than when awake. Only the facts in connexion with these various points ought to be reported; the interpretation of their meaning belongs to the doctor.

PUPIL OF THE EYE

The globe of the eye is divided into an anterior and a posterior chamber by means of a circular curtain which is hung between them. This membranous curtain is movable and in the centre there exists the opening termed the pupil, which is enlarged or diminished, according as the iris contracts or dilates. The iris is of different colours in different individuals and hence the appearance of what we call black, blue, grey, or hazel eyes.

PURGATIVE PILLS

See PILLS.

PURGATIVE POWDER

See Powders.

PURULENT OPHTHALMIA

See Ophthalmia, Purulent.

PYÆMIA

(Greek, **puon,** " pus " ; **haima,** " blood ").

This is a disease, with well-marked constitutional and local symptoms, which is supposed to be due to the introduction into the system of pus, or the constituents of pus. It is closely allied to puerperal fever and erysipelas and is often connected with inflammation of one or more veins. Some few cases of this disease have been reported in which the patients are quite free, at the time of the attack, from wound or sore, but usually the pyæmic symptoms follow a severe injury or a surgical operation, or occur in the course of some suppurative affection. Pyæmia often results from compound fractures and operations on the bones, especially amputations, and is one of the chief causes of death in the surgical wards of large hospitals.

PYÆMIA, PREDISPOSING CAUSES OF

The following are the predisposing causes of this disease :—Exhaustion from a long previous illness, as dysentery or fever, or from deprivation of food ; organic disease of the kidneys ; profuse hæmorrhage during or after an operation ; unhealthy employment and residence in foul and badly ventilated quarters ; chronic alcoholism and intemperance, both in eating and drinking. The most frequent predisposing causes are impure air, such as is contained in over-crowded wards in a large hospital, and neglect of the patient's wounds leading to the accumulation of decomposing and putrid material about the raw surfaces.

PYÆMIA, SYMPTOMS OF

The constitutional or general symptoms of pyæmia resemble those of typhoid fever; the local symptoms consist in the formation of abcesses in the liver, lungs and joints and occasionally in hæmorrhagic and pustular affections of the skin.

PYÆMIA, TREATMENT OF

The treatment of pyæmia, like that of other acute and exhausting diseases of a typhoid character, usually consists in the free administration of alcoholic stimulants and concentrated fluid nutriment. It need hardly be said that the best professional skill must be employed. Quinine, in large doses, seems, in some cases, to do good. Strict attention should be paid to the nursing of the patient, who is generally quite helpless. The room should be well ventilated and freed of carpet and all possible articles of furniture. Some disinfectant solution should frequently be sprinkled over the floor and care should be taken to remove and disinfect at once soiled sheets and bed-clothing and to burn the dressings at every change. The duration of an attack of pyæmia varies much in different cases. Death may occur on the third or fourth day, or the symptoms may continue for a month or six weeks and then the disease terminate fatally. In acute pyæmia, death most commonly takes place between the seventh and ninth days. Cases are sometimes met with in which the pyæmic symptoms are slight and are prolonged for a period of three or four months, or even longer. To this form has been given the name of chronic pyæmia. Pyæmia is a very grave affection and, when acute and associated with frequently repeated chills and mischief in the lungs, is, in almost all, if not all, cases rapidly fatal. Indeed, recovery from any form of pyæmia is a very rare occurrence.

QUARANTINE

originally meant the period during which a ship arriving from a foreign port and suspected of being infected with malignant disease was required to refrain from communication with the shore. This period was fixed at forty days—hence the name, from the Latin *quadraginta*, meaning "forty." In the United Kingdom quarantine in this sense has ceased to be observed. It inflicted serious injustice and inconvenience upon the healthy passengers on board such ships, and the port sanitary authorities now compel any infected or suspected vessel to moor until it has been completely overhauled by the Medical Officer of Health. Special regulations are issued by the Local Government Board in respect of cholera, yellow fever and plague. In a conventional sense the term quarantine is employed to describe the period during which the members of a household in which infectious disease has broken out must refrain from mingling with the community. This may last till the case has ceased to be infectious and final disinfection has been carried out, or until the incubation period has been exhausted without fresh sign of disease occurring. When the case has been removed to a hospital, the rest of the inmates of the household may be accommodated elsewhere freely during the quarantine period and the compulsory disinfection of the house. It is obvious that the children should not attend school until all risk of conveying disease has ended.

QUARTAN AGUE

See AGUE.

QUASSIA INFUSION

See INFUSIONS.

QUICKENING

This symptom, as giving evidence of the existence of pregnancy, is one which, isolated and viewed by itself, fails to yield any proof beyond that which is presumptive, but at the same time it is to be implicitly relied on in the vast majority of cases. The term "quickening" is used to express the time in a pregnancy when a woman first becomes conscious of the movements of the child in the womb. The popular idea, that up to this time the child in the womb is dead and that these movements are the first indications of life, is, it need hardly be said, erroneous.

QUICKLIME

Quicklime is a cheap and useful agent for admixture with animal and other matters, as it absorbs moisture and many noxious gases and, by its antiseptic properties, retards and even arrests putrefaction. It has, however, this objectionable feature, that it eliminates and sets free the ammoniacal gases. Lime is especially convenient for use as an antiseptic and is highly to be recommended for local applications, as in whitewashing and the sprinkling of gutters, cellars, damp surfaces and putrescent substances and for temporarily stopping putrefaction. Lime should be used dry and unslaked, except it be for the special purpose of combining with carbonic acid gas. For this end it should be reduced to creamy hydrate and, in overcrowded apartments for the sick, it may be usefully employed in this way, distributed in shallow plates.

QUICKLIME IN EYE
See EYE, QUICKLIME IN.

QUININE PILLS
See PILLS.

QUINSY, OR TONSILLITIS

This is a severe form of sore throat, in which the inflammatory action is not confined to the mucous membrane, but involves the tissues beneath it. It is quite liable to go on to what is called suppuration, or the formation of pus. The organ most prominently involved is the tonsil ; but the palate and uvula, the base of the tongue, the valve of the air-passage, the back of the throat and the tissues which connect these various structures are all liable to be involved to a greater or less extent. It occurs more frequently in persons with diseased tonsils than in other persons and is most frequent in children and young adults. It is more serious in children and in persons with enlarged and diseased tonsils than in adults.

QUINSY, SYMPTOMS OF

Quinsy usually begins with a chill and this is followed by fever in twenty-four hours. Pain in the throat is an early symptom. All the visible structures of the throat are inflamed and swollen, the tonsils in particular—sometimes only one of them, sometimes both of them, but usually one much more than its fellow. The swollen tonsil may project beyond the middle line of the throat, or the two tonsils may touch. They are usually covered with whitish or yellowish creamy secretions. The pain in the tonsil sometimes runs up along the fold behind it into the ear, with the vent-hole of which it is continuous. There is indistinctness of speech, difficulty and pain in swallowing and difficulty of breathing if the swelling is very great. The parts become dry, the taste is impaired and the breathing offensive. Sometimes the saliva dribbles from the mouth because it cannot be swallowed. Sleep becomes difficult or impossible when the mechanical impediment to breathing is great, or when the nervous system is excited by fever and suffering. Children are liable to delirium and convulsions. The disease lasts longer than common sore throat and, though the tendency of the attack is to recovery in most instances, there are not a few in which it is fatal from the formation of burrowing abscesses, which inflict irreparable injury. In many instances an abscess forms in the tonsil and, when this bursts spontaneously, or is discharged by the surgeon's knife, relief from pain is usually immediate and the inflammatory process soon subsides, provided there are no more abscesses. An abscess that bursts spontaneously may suffocate the patient by flooding the air-passages, but this is seldom. It is best and safest, however, to submit to an operation if advised by the doctor. A child tormented for days by sleeplessness from pain will sometimes go to sleep on the lap of its mother or nurse after the discharge of such an abscess, even before the surgeon has cleansed his knife.

QUINSY, TREATMENT OF

It is desirable that quinsy should be treated from the first by the doctor. Gargles, though sometimes employed, often entail much pain and may be replaced by sprays and douches propelled from the atomizer so frequently in use for diffusing eau de Cologne and other perfumes. The use of these sprays involves no pain ; they are grateful and soothing and reach the remoter parts of the throat which are never reached by the gargle. A gargle as ordinarily used only reaches the palate and base of the tongue as a rule, as may be seen by experimenting with coloured water—indigo water, for example. To reach the back part of the throat, it must be half swallowed—a difficult practice and too painful for the subject of a sore throat. It is better to try to bring the fluid of the gargle in contact with the sore parts by holding it in the mouth and then gently turning to one side and to the other, backwards and forwards, so as to let the fluid bathe the parts in succession, without making any gurgling noise by forcing the air through it as in the usual method. Another good plan is to carry the fluid back to the root of the tongue in a teaspoon and then pour it over the parts as the head is thrown back, which will bring it in contact with the deeper structures of the throat ; then the sides of the throat are bathed by appropriate movements of the head to either side ; and the process is completed by suddenly bringing the chin down to the breast as the fluid is ejected, so as to bathe the middle portion of the throat, the tonsils, palate and roof of the mouth. " When allowed to progress beyond a certain point," says one authority, " very little can be done in quinsy except to hasten suppuration. But if the patient applies in time to a physician possessing the requisite knowledge, there is seldom occasion for any one to have an attack of quinsy. Medical science has achieved one of its greatest triumphs in discovering a means of arresting the progress of this painful disorder. The writer has been subject to occasional attacks of quinsy, but had the good fortune to consult Dr. James Simpson, of Philadelphia, who dissipated a threatened attack by the following treatment :—

Mix—Tincture of iron . .	½ ounce.
Sulphate of quinine .	24 grains.
Chlorate of potash .	2 drachms.
Glycerine	2½ ounces.
Syrup	½ ounce.

" Take two tablespoonfuls every two hours in a wineglass of water. The peculiarity of this prescription is that the chlorate of potash is not dissolved.

" As a gargle, dissolve an ounce of chlorate of potash in a pint of water and, for external application, use the following liniment :—

Oil of amber (rectified) .	½ ounce.
Oil of turpentine . .	2 ounces.
Camphor	3 drachms.
Castor oil	2 drachms.

To be well rubbed frequently over the throat.

" This treatment the doctor referred to found in an extensive practice to be almost a specific, not only for incipient attacks of quinsy, but for most inflammatory diseases of the throat, including even diphtheria."

QUOTIDIAN AGUE. *See* AGUE.

RABIES. *See* HYDROPHOBIA.

RACHITIS, OR RICKETS (Greek, **rha'chis**, " the backbone ").

The medical name of this complaint was given to it by Glisson, who first described it, partly because he conceived the vertebræ to be the bones most commonly implicated ; but chiefly, it would appear, from the resemblance to the English name rickets. His doctrine was erroneous ; and the error perpetuated by the misnomer has led to serious mistakes in practice as well as theory. The spine is undoubtedly liable to partake with the rest of the skeleton in the morbid condition of rickets, but certainly not in a greater degree than the other bones. This malady seldom appears within the ordinary period of lactation, or after puberty. It is ushered in and attended throughout by general febrile disturbance and is closely connected with a peculiar morbid condition of the nutritive functions. The opinion that it is of scrofulous origin has been strongly controverted and does not in reality appear to be well supported by facts. It is most common among the poor and in closely peopled districts, as all diseases of children are ; but it is by no means confined to either, or to children whose constitutions are apparently the most feeble in other respects. Indeed, it is a frequent remark, that even robust and powerful men exhibit tokens of having been rickety in their childhood. Among such indications are smallness of the pelvis, with inward or outward curvature and disproportionate shortness of the lower limbs. This sudden check to the development of the skeleton, constantly observed in rickety children, with the distortion arising from the unnatural softness of the bones, is the most usual cause of the short stature, as well as the proverbial ugliness of dwarfs. In extreme cases of this complaint the head is generally small and pointed : no longer supported by the yielding and shortened neck, it sinks down between the shoulders ; the occiput is thrown back and almost touches the hump formed by the incurvated spine behind the chest ; the chin is thrust forward, giving an expression to the features very characteristic of the dwarf, and rests upon the breast-bone, which is very prominent ; in each side the ribs are flattened and bulge in upon the lungs. The shoulders, losing the support of the wreathed and twisted clavicles, approach towards each other in front, drawing with them the scapulæ, which stick out laterally and add considerably to the deformity as seen from behind ; the arms, though bent and in reality shortened, seem of disproportionate length ; the lumbar spine is thrust inwards ; the pelvis is small and flattened ; the thighs are bowed forward ; the knees, with their petallæ at the side instead of in front of the joint, touch or overlap each other ; while the feet are set wide apart, a sudden twist above the ankle still permitting the soles to be set to the ground. Such are some of the varied changes which exhibit a melancholy proof of the prevalence of the disease in every part of the bony frame. Of course such extreme cases of rickety distortion are comparatively rare ; yet almost daily instances are seen in the unwholesome courts and alleys of large towns, while slighter examples of the condition are extremely common. Recovery even from considerable degrees of this affection is more frequent and more rapid than might be imagined ; but the pelvis and lower limbs, which are the most commonly and most extensively implicated, seldom completely regain their natural proportions. This fact, as it regards the female pelvis, is worthy of notice, being the cause of the most dangerous kind of difficult parturition. It is in extreme cases of this sort that Cæsarean section has had to be practised. Rickets being chiefly caused by bad feeding and insanitary surroundings, the first line of treatment is to give up the use of all starchy and poor food, to stop oversuckling at once, and to remove the child to healthier quarters and keep it clean and warmly clad. Porridge and milk is a nutritious diet, but if the baby is still at the breast it should be weaned forthwith and placed on good cow's milk. Cod-liver oil and malt extract, or Parrish's food should be used for a considerable period.

RADIUS

The exterior and smaller bone of the forearm, reaching from the elbow to the wrist.

RECTUM

(Latin, **rectus,** "straight").

The rectum, the last six or eight inches of the intestine, is so called because it is less flexuous than any other part of the intestinal canal. It begins at the upper part of the *os sacrum*, where the colon ends ; and, going down obliquely, is tied to the extremities of the coccyx by areolar tissue behind, and is connected with the neck of the bladder in men, but in women with the vagina, before ; whence arises the sympathy between these parts. The coats of the rectum are more thick and fleshy than those of any other of the intestines ; it has in general no valves, but several rugæ ; had the former existed, the expulsion of the fæces would have suffered inconvenient delay. The figure of the rectum varies, as it is full or empty; when empty, it is regularly cylindrical and contracts in transverse folds : it is capable of very great distension and may even be extended to the size of a large bladder. The quantity of fæces that sometimes accumulates is prodigious and cannot be removed except by mechanical means.

RED GUM

See Eczema.

REGISTRATION

Every birth must be notified to the registrar of the district within which it took place within forty-two days of its occurrence, and similarly notice of every death must be given within five days. Marriages are registered at the time of the ceremony by the officiating person, whether he be a clergyman, minister, registrar, or other authorized official.

RELAPSING FEVER

This contagious disease, sometimes called famine fever, is chiefly met with in the form of an epidemic in periods of scarcity and famine.

RELAPSING FEVER, SYMPTOMS OF

Relapsing fever is characterized by a very sudden attack of shivering or rigor ; a quick, full pulse ; white, moist tongue, afterwards becoming yellow or brown ; pain at the pit of the stomach and vomiting; an enlarged liver and spleen ; constipation of the bowels ; hot and dry skin ; no marked rash on the skin ; high-coloured urine and pain in the limbs, with severe headache ; restlessness and often delirium. Then comes an abrupt cessation of the symptoms, on or about the seventh day, generally accompanied by copious perspiration. The febrile symptoms are then absent completely for a few days, the tongue becomes clean, the appetite returns and the patient can often get up and walk about. Then comes the relapse, on or about the fourteenth day from the onset of the fever, running a similar course to the first attack, but shorter in duration and generally terminating about the third or fourth day of the relapse. Recovery generally ensues then ; but there may be a second, third, or even a fourth or fifth relapse in some cases.

RELAPSING FEVER, TREATMENT OF

The best treatment to be adopted is that which consists in placing the patient in a large, well-ventilated room, in promoting cleanliness and in giving milk and other nourishing diet. At the beginning of the attack the bowels should be opened, if required, by a purgative ; the skin should be frequently sponged with tepid water, but only one part of the body should be exposed at a time, so as not to cause a chill to the surface. The vital powers must be kept up by milk, beef-tea, egg and milk, etc. Stimulants are not often wanted, but must be given with care when there is much prostration and failure of the heart's action. If there is any suppression of the urine, the bowels must be freely opened, the patient put in a hot bath and dry-cupping applied to the loins.

RELAPSING FEVER, TREATMENT OF, IN CONVALESCENCE

During convalescence, tonics must be given and the mineral acids with quinine are the best for this purpose. For some time after the fever has ceased the patient requires a liberal and generous diet before he will sufficiently regain his strength.

REMITTENT FEVER

See BILIOUS FEVER ; FEVER, CHARACTERISTICS OF.

RESPIRATION

That the cause of death in certain cases, and the rationale of the directions for procedure where animation is only suspended, may be more easily understood, it is desirable under this heading to give a concise description of the natural process of respiration in man and all warm-blooded animals. Respiration is the reception of air into the lungs and its expulsion from the lungs ; the former act is termed inspiration, the latter expiration. By the action of certain muscles, which elevate and depress the shoulder, protrude and draw back the breast-bone, and straighten and relax the muscular and membranous partition, called the diaphragm, which divides the chest from the abdomen, the cavity which contains the lungs is alternately increased and diminshed in all its dimensions. When it is increased, the air as naturally rushes into the lungs, and by the same laws, as it does into the body of a pair of bellows, when by raising the handle you increase the dimensions of the cavity. And again, when the cavity of the chest is diminished, the air is as necessarily expelled. This constitutes the mechanism of respiration ; but the air thus received into the lungs, and the blood which, in its transmission through the lungs, comes nearly into contact with the air, are both materially altered in their chemical qualities. So necessary is this chemical change in the quality of the blood to the maintenance of life that if it becomes in any degree interrupted, disease follows and, if suspended only for a few minutes, death is the inevitable consequence. In this way does life become extinct in drowning, hanging and suffocation, and also in choking, when any substance sticks in the throat and so presses upon the windpipe as to prevent breathing. In all such cases, however, you are not to be deterred from making attempts at recovery, although a much longer time than that above specified has elapsed since the person was supposed to have sunk under the surface of the water, or to have been suspended by the cord ; for it frequently happens that the drowning person has risen unobserved to the surface and, in the latter case, that the cord has only constricted the windpipe imperfectly. In every such case, therefore, where indubitable signs of with have not appeared, some attempts at resuscitation should be made.

RESPIRATION OF PATIENT, OBSERVATION OF

A healthy adult breathes from sixteen to eighteen times a minute, without being conscious of the act of breathing. In sickness, the points to notice, besides the variations from the healthy standard in number, are: 1, whether the breathing is even or regular, or panting and short; 2, whether it is from the upper or lower part of the chest; 3, whether a full, deep inspiration can be taken without pain and at what spot, if any, the pain is felt; 4, whether the breathing is better in one position than another and in which it is most distressing; 5, whether any sound is made as the air passes through the lungs and air-passages and what sound; 6, whether there is a difference and what it is between the breathing when sleeping and awake.

RESPIRATION, PURIFICATION OF BLOOD BY

The manner in which the blood is purified will be better understood by observing the changes which it and the air undergo when they come in contact with each other. About one-fifth of the atmospheric air is oxygen—the balance nitrogen. On examining the air, however—the breath—as it comes from the lungs it will be found that the greater part of the oxygen has disappeared and that another gas—carbonic acid has taken its place. This new gas is formed by the union of the oxygen from the air with the carbon in the blood. The venous blood, which is heavily charged with carbon, is conveyed to the lungs and then brought in contact with the air—or so near to it that it amounts in fact to the same thing. The air is in the cells, the blood on the outside of them in the minute capillaries, the walls of which are so thin and porous that the oxygen escapes from the air, unites with the blood, burns up its carbon, sets free the carbonic acid which results from the combustion and which escapes through the cells, takes the place of the oxygen in this air and is ejected with it from the lungs. Thus the blood becomes changed—oxygenized, as it is sometimes termed—and at the same time the air or breath becomes changed also. The one is made pure, the other impure. This process goes on constantly; every time we inspire, or take in a fresh supply of air, a fresh supply of venous blood is forced into the capillaries around the air-cells: the previous supply of blood, being purified, is sent off into the veins of the lungs, and conveyed by them to the heart for general distribution.

RESPIRATION, PURPOSES OF

Respiration, or breathing, is for two important purposes: first and mainly, for the purpose of purifying the blood; and, secondly, for the purpose of producing animal heat. The purification of the blood in the lungs is indispensable—so indispensable, indeed, that it would soon cause death if it were to remain unchanged. The venous blood is full of poison which it has acquired in circulation throughout the body; and this poison can only be removed by bringing it in contact with the atmospheric air, which is done in the lungs by the process of breathing.

This poison is carbonic acid, and results from the union of carbon with oxygen, two agents which have a remarkable affinity for each other when found in the body. Carbon is obtained from our food ; it is of the same nature as charcoal and, itself, is as harmless as charcoal ; but when it unites with oxygen, or, as is really the case, when it is burned up by that vital gas, the result or residuum—what we may call the ashes—is carbonic acid, a suffocating, deadly poison. This carbonic acid is sometimes found at the bottom of wells and in mines and will kill a person or animal if inhaled into the lungs. It is also given off by burning charcoal, the fumes of which have often caused the death of persons who have allowed them to escape into their bed-rooms. The blood is sent to the lungs for the purpose of getting rid of this poison. It there escapes through the air-cells and is expired, or thrown off, with the breath. This explains why people are suffocated, or their health greatly injured, by breathing the same air over and over again. It becomes more and more charged with this poisonous gas every time and, if continued long enough, this vitiated atmosphere will produce death as effectually as the choke-damp of wells. In badly-ventilated rooms and buildings containing large assemblies, people have been poisoned in this way and, if not killed outright, have suffered headaches, nervous depression and faintings, which often lay the foundation of more serious disease. In the tragedy of the Black Hole of Calcutta the victims met their death from suffocation due to this gas.

RESPIRATIONS, NUMBER OF

The number of respirations and the quantity of air inspired vary very much according to the age, sex and state of the health ; but, in a healthy adult, in ordinary circumstances, the number of respirations is from fifteen to twenty in a minute and the amount of air inhaled at each inspiration is about twenty cubic inches. The proportion of carbonic acid gas in the expired air is about one-thirtieth.

RESPIRATORS

People working in factories, chemical laboratories and the like, are subject to sore throat independently of any special proclivity thereto ; while they are still more likely to suffer if constitutionally subject. Such persons should wear respirators in front of the nose and the mouth during exposure. These appliances filter the respired air, as it were, and catch the minute particles in their passage towards the throat. Of the variety of respirators in use, some are so arranged as to contain masses of raw cotton or wool, which collect the dust and dirt, which can be removed from time to time as the respirators become foul. One is composed of meshes of delicate silvered wire, covered in front with a piece of silk. Pliny mentions that workers in mines were accustomed to fasten bladders before their mouths and that the Roman bakers placed cloths in front of their faces when working in an atmosphere loaded with dust. It is often found, too, that persons suffering from consumption, chronic bronchitis, or even only from undue irritability of the mucous membrane of the throat, are unable to face the air in windy and inclement weather. Sometimes they cannot withstand the changes of temperature even on days which promise to be pleasant.

In such circumstances, they are compelled to keep in the house, or to muffle the mouth and nose with a handkerchief or veil when they go out into the open air. The temperature of the respired air is modified by the warmth imparted to the comforter by the hotter air of respiration, while at the same time its pungency is moderated, if too rich in oxygen for the sensitive throat or air-passages. Unmitigated sunlight is known to be often irritating to sore eyes and in like manner unmitigated atmospheric air is sometimes too irritant to sore throats, sore air-passages and sore lungs. A respirator of a series of fine metallic meshes, covered with silk, is much used and may be recommended to all whose throat and air-passages are over-sensitive. Some respirators are made merely to cover the mouth so as to encourage nasal, or normal, respiration and others to cover both mouth and nose. These appliances may be rather unsightly, but their use enables invalids to take regular outdoor exercise in carriage or on foot, instead of undergoing compulsory confinement to the house for fear of catching cold. Women may make use of the ingenious respiratory veil, devised by Lennox Browne. It consists of a piece of plain unspotted blonde, with a double thickness of silk gossamer on the lower four inches ; the part that covers the mouth and nostrils is stiffened by a layer of thin wire gauze, so that the veil may stand a little away from the mouth and be more comfortable. Such a veil can be easily made.

RESPIRATORY APPARATUS, NERVES OF

See Nerves of Respiratory Apparatus.

REST AFTER DELIVERY

There is nothing likely to prove more injurious to a young wife after her first confinement than to allow a great number of people to come into the room beside her. Too much care cannot be taken to keep her perfectly quiet after her labour is over, and to save her from all those disturbing influences which operate so injuriously. The necessity for rest in the horizontal position after delivery cannot be too strongly insisted upon and the fact that so little regard is paid to it renders it all the more necessary to impress every woman with its importance. Among the poorer classes of society, where a woman is unable to obtain that amount of rest which is so necessary for her recovery, the frequent occurrence of womb diseases in after life is almost inevitable. In the case of those, however, in comfortable circumstances, who have a nurse to minister to their every want, who, if they have already a family, are relieved of all anxiety in regard to it by kind friends or relatives, by whom the comfort and the happiness of their little ones will be as carefully attended to as by themselves—in the case of such there can surely be no excuse for neglect. But it is difficult to make some women understand this necessity for prolonged rest after confinement. They will tell you they feel quite well and able to be up and moving about and not infrequently they leave the horizontal position after three or four days, sometimes even sooner, and may be found sitting upon a chair at the fireside. The reason why many women act in this way is because the effects to which such carelessness will give rise are not, at first sight, apparent. Many of their most intimate friends left their bed on the fourth or fifth day after delivery and in a few days more walked about outside, and "Why may not I?" Besides, many women regard the mother who can thus early leave her bed and her apartment as "clever" and praise her for what she has done. But could they read the future they would pity and condemn rather than praise her. Many women also labour under the impression that when the doctor enjoins prolonged rest in the recumbent posture, he imagines them to be ill, and they think that, if he only knew how strong they felt themselves, he would not hesitate in permitting them to leave bed before the eighth or tenth day. Now, in the great majority of cases, this is not the reason why the doctor keeps them in the horizontal position at all. His object in enjoining the recumbent position is to allow of the womb regaining, to a great extent, its normal dimensions. After delivery it is always large and, when it is remembered that six weeks or two months have to elapse ere its natural size is regained, the necessity for long rest in the horizontal position is evident. The great danger, therefore, which the patient runs in thus leaving the horizontal position too soon is that the proper involution, or contraction of the womb to its normal size, may be interfered with. When this is the case, the ligaments which retain the womb in its natural position are unable to sustain its increased weight; they become relaxed and, in consequence of this, various displacements may occur. The patient then begins to suffer from a feeling of dragging and weight about the loins. When these symptoms manifest themselves thus early, it is well, for then the patient has warning of her danger, and by again resuming the horizontal position for a week or so longer, she may prevent more serious mischief. More frequently, however, the changes which take place are more insidious in their nature and do not show themselves at the time, and hence arises the great necessity for careful after-treatment. It is a good rule for every woman not to leave her bed after confinement till the ninth or tenth day. She may then be allowed to lie upon a couch or sofa till the expiry of a fortnight, after which she may move about upon the same landing for another week. If there be another room immediately adjoining the one in which she is confined, with a door of communication between them, there is nothing to prevent her from being removed into it during the second week. This will be a pleasant change and will at the same time permit of the other apartment being more thoroughly ventilated. If this change can be accomplished in the manner indicated, advantage should be taken of the patient's temporary absence from the room to have the bed-clothes and the mattress thoroughly exposed to the air. At the end of the third week she may be allowed to come downstairs and move about; but even then care must be taken that she does not remain too long in the standing or sitting posture, but that she recline upon a couch or sofa during some part of each day. Provided the weather be not too cold, she may also now begin to take exercise in the open air. At first a drive in a carriage will, perhaps, be best; or, if it be preferred, she may take a turn in the garden. Gradually, as the patient's strength grows, the time devoted to exercise may be increased; but it should always be moderate for some time after confinement. In cold weather, or in those cases in which confinement has occurred during winter, she had better not venture out of doors till the expiry of the month. By a little carefulness in regulating the exercise thus begun, she will be enabled to recover favourably without the occurrence of anything of an untoward nature; but by recklessness she may throw herself back, rendering her recovery more tedious and possibly permanently impairing the state of her health. For the patient's first outing after confinement, it will be necessary to choose a good day, not one in which the wind is keen and cutting, and the best part of the day should be selected. If carriage exercise be taken, only a short drive should be contemplated; if on foot, the patient must return home free from anything like fatigue. In these drives or walks she should be accompanied by an agreeable companion, who will keep up a pleasant conversation and thus render them more serviceable in restoring the patient's health. By attention to such rules a good recovery will in general be secured and health be thoroughly restored.

RETE MUCOSUM

The deeper, moist, or succulent part of the epidermis or scarf skin, which dips down between all the papillæ of the corium, has received the name of *rete mucosum*, or *rete Malpighii*, from the name of the anatomist Malpighi, who first described it. It is this epidermal layer which is removed by a blister and which is frequently rubbed off in slight accidents, when the surface beneath feels raw and oozes a little clear liquid and possibly a little blood. As long as accident or disease destroys only this outer epidermal layer, no scar is produced; but when in any way the corium, or true skin, is destroyed, a scar or cicatrice results, varying in severity according to the depth of the destruction. Thus many slight burns remove the epidermis only, whereas those which are followed by any loss of skin or ulceration, will leave scars which may prove very unsightly.

RETENTION OF URINE

This is a condition in which the urine cannot be evacuated from the bladder at all, or only with great difficulty, the former being known as complete and the latter as incomplete retention. It should not be confounded with suppression, in which the urine has not been secreted by the kidneys and consequently the bladder is empty.

Hysterical retention is a disease of the mind and depends wholly upon the volition of the patient. Gross mentions a form of retention which is periodical in its nature and which he ascribes to malarial influences. Hence he adopts the treatment of ague, as quinine, etc.

The symptoms consist of a great and urgent desire to pass water and partial or complete inability to do so; this is accompanied by repeated straining efforts, violent pain and extreme distress and restlessness; the countenance assumes an anxious expression, the pulse is quick and the skin dry. The bladder is more or less distended, according to the protraction of the trouble, and its position may be ascertained by percussion above the pubes. If this condition be not speedily relieved it results in rupture of some portion of the urinary tract and extravasation of the contents of the bladder into the surrounding parts. Here the urine acts as a foreign body and causes an inflammation which soon terminates fatally.

As the treatment of this condition varies with its cause, we shall have to consider them together. The causes are numerous and may be classified as those due to mechanical obstruction; paralysis of the bladder, partial or complete; hysteria; malaria. The agents mechanically obstructing the flow of urine are numerous. Organic stricture of the urethra is a very common one, but it causes complete retention only when, after exposure of some kind, or over-indulgence in spirituous liquors or sexual excitement, there is congestion or spasm added to it and the urethral canal is thus made impervious. A warm bath should be given at once; this failing, the attempt should be made to use a catheter; but if this cannot be done, the administration of ether or chloroform should be superadded. Should these means fail, the only resource left is for the surgeon to "tap" the bladder either through the rectum or above the pubes. The relief, however, is only temporary, the stricture still remains and operation must be resorted to for its relief. Spasmodic contraction of the muscle surrounding the neck of the bladder, or of the muscular coat of the urethra sometimes exists as a cause of retention: when such is the case, a warm bath, purgatives, opium and chloroform are the remedial agents. Inflammation along the urethral canal (gonorrhœa) often has retention of urine as a complication. Here it is caused by an intensely congested and swollen mucous membrane and the same treatment as for muscular spasm may be adopted. Amongst the other mechanical causes, the most important are a small calculus impacted in the urethra, clotted blood in the urethra or bladder, foreign bodies, as pieces of bougies, catheters, etc., in the urethra, tumours of any kind, external to the urethra, which press upon it: this last cause operates quite frequently. The treatment should always be directed to the removal of the cause and the case should be placed in skilful hands. Paralysis of the bladder, causing retention, may be due to voluntary retention repeated and kept up, apoplexy, injury to the skin, acute overdistension of the organ, shocks to the system from capital operations, and in certain high fevers, as typhoid, typhus, etc. The treatment in all these cases should be by the catheter. Various cases are recorded in medical books, where, from a false modesty, persons have retained the urine so long, many hours together, that the ability to pass it was lost and, not being aware of the danger, the patient failed to apply to a physician, when fever set in, followed by inflammation and speedy death. The pouring of water into water in the hearing of the patient, so as to resemble the natural operation, has been known to remove this dangerous inability. Parents should impress on their children the importance of prompt attention to those urgent calls of nature and the danger of neglect.

RHEUMATIC FEVER

The type of what we call rheumatism is acute rheumatism, also known as rheumatic fever. Rheumatic fever most frequently arises from cold and damp, especially if the person has suffered from any cause of depression, as fatigue, improper food, or the like.

The disease begins with rest

MUSCLES OF THE HEAD AND ARMS.

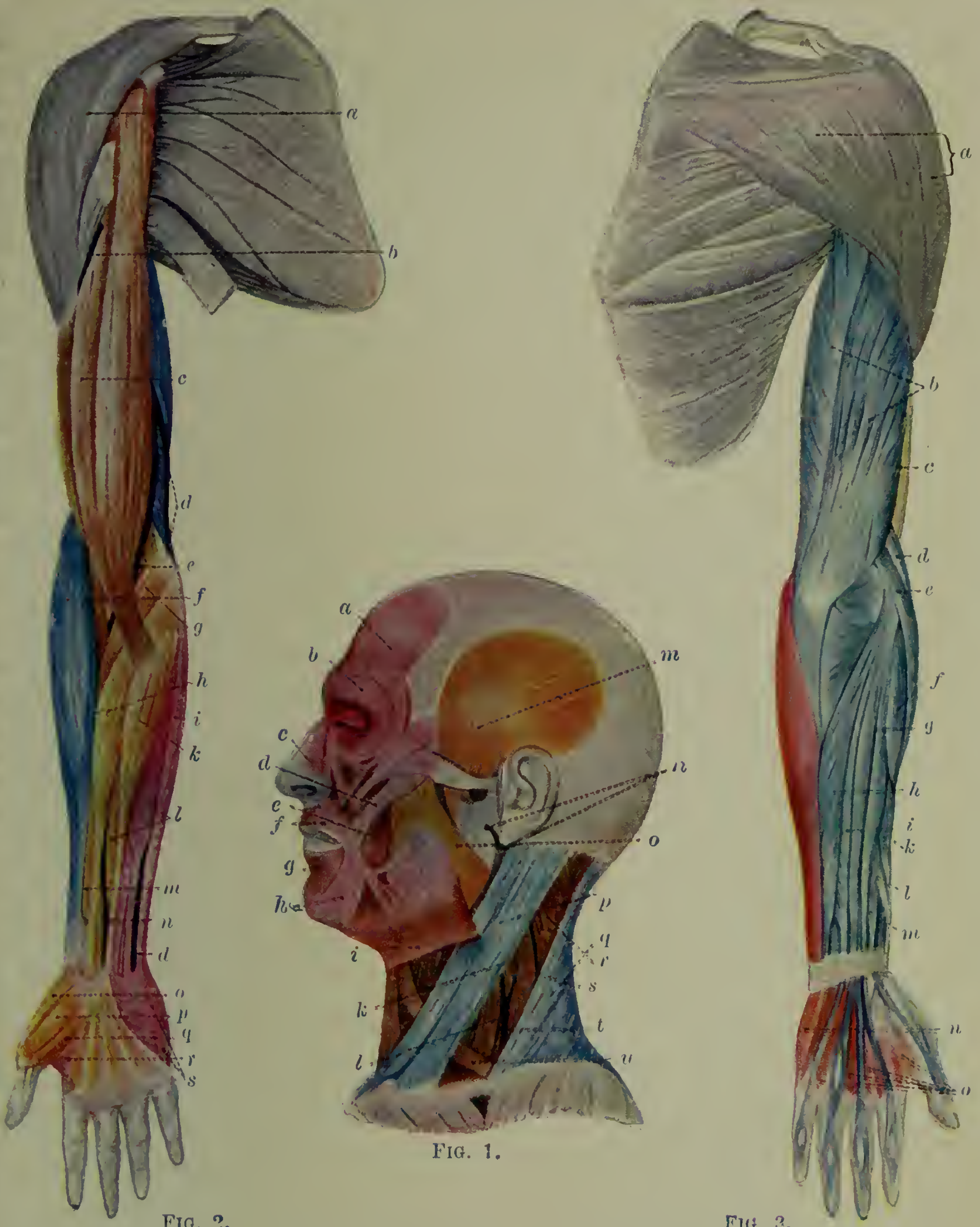


FIG. 2.

FIG. 1.

FIG. 3.

FIG. 1.—*a*, frontal; *b*, orbicularis palpebrarum; *c*, triangularis nasi; *d*, zygomaticus major; *e*, left masseter; *f*, orbicularis oris; *g*, levator menti; *h*, quadratus menti or depressor labii inferioris; *i*, platysma myoides; *k*, *s*, splenius colli; *l*, *t*, levator scapulæ; *m*, superior auricular muscle; *n*, upper part of the sterno-mastoid; *o*, buccinator; *p*, sterno-mastoid; *q*, trapezius; *r*, splenius capitis; *u*, omo-hyoid.

FIG. 2.—*a*, deltoid; *b*, brachialis anticus; *c*, biceps brachii; *d*, the elbow nerve; *e*, inner and lower portion of brachialis anticus; *f*, *m*, supinator longus; *g*, pronator radii teres; *h*, flexor carpi radialis; *i*, flexor carpi ulnaris; *k*, palmaris longus; *l*, flexor digitorum sublimis; *n*, extensor ossis metacarpi pollicis; *o*, *p*, *q*, *r*, abductor pollicis; *s*, palmaris brevis.

FIG. 3.—*a*, deltoid; *b*, triceps extensor cubiti; *c*, brachialis anticus; *d*, supinator longus; *e*, extensor carpi radialis longior; *f*, do. brevior; *g*, extensor communis digitorum; *h*, extensor carpi ulnaris; *i*, extensor minimi digiti; *k*, extensor ossis metacarpi pollicis; *l*, extensor primi internodii pollicis; *m*, extensor secundi internodii pollicis; *n*, abductor minimi digiti; *o*, interosseous muscles.

lessness and fever, with white or creamy tongue, and deranged bowels, constipated or relaxed. Presently the joints begin to ache, the pain increases till there is great swelling and tenderness all over one or more of the large joints of the body; the hip-joint is not, however, very often affected. There is by this time, in most cases, a high temperature, 102° or 103° F., but it gradually increases and in many cases becomes excessive: this, indeed, constitutes one of the great dangers of the disease. Excessive bodily heat is apt to develop itself, and when the temperature rises about 105° F., there is always more or less danger to the patient and every degree of increase adds to the danger in far more than geometrical progression; for, by the time it reaches 108°, recovery is practically hopeless and at 109° quite hopeless. In those cases where a high temperature develops itself the sweat, which is ordinarily very profuse and of strong acid odour, disappears and its reappearance may be said to be the first sign of real amendment. The pain and tenderness in the joints, too, are very great. The patient can hardly bear the weight of the bed-clothes, still less can he bear the swollen limbs touched; he himself dare not move and he even dreads the movements of others. The pulse is quick and of fair volume, and, unless the heart be affected, is regular. The thirst is extreme, whilst the tongue is coated with a thick white fur, which speedily renders the scanty saliva acid. The urine is high-coloured and full of urates—that is to say, it deposits, on cooling, a thick brick-dust-like sediment, which is re-dissolved on heating. It is difficult, too, to say when the patient has fairly seen the worst, for joint after joint may be affected and even when the patient seems fairly on the road to recovery, he may suffer a relapse. There is a great tendency in the disease to implicate the heart.

The mode of treatment which is, with due modifications, perhaps the best, is the treatment by alkalies. To this end the bicarbonate of potash is given, either by itself or effervescing with citric acid, in good large doses—30 grains or so every four hours, continuing it till the pain begins to abate and the urine is rendered alkaline. This plan is a good one undoubtedly, if employed not rashly, but with due vigilance; but there are doubts whether in certain cases it has not been over-much employed and done harm. This, on the whole, however, is the treatment we recommend. The joints ought, at the same time, to be wrapped in cotton wool, but in some cases great good is derived by applying warm alkaline lotions next the skin and placing cottonwool over them. The perspiration must be provided for—something must receive it and, if linen is next the skin, this soon becomes cold and unpleasant from the profuse sweating. Woollen cloths should, therefore, be placed next the skin, but not be allowed to remain too long, or they act as a kind of poultice, giving rise to what are called sudamina on the surface; hence it used to be that the cure for rheumatism was six weeks in blankets. In the olden time bleeding was largely employed and there can be no doubt but that its use was disastrous, for in those days the test of the necessity for bleeding was the condition of the blood itself and rheumatic blood, of all others, affords the buffed and cupped appearance which was supposed to indicate the necessity for bloodletting. A favourite plan of treatment has been blistering. Large cantharides blisters have been placed round the limbs close to the affected joints and allowed to remain some hours; after these have been removed, large poultices are to be applied to favour the flow of fluid. Better, however, it would be to apply the blistering fluid with the poultices over it from the beginning, especially as this process is far less painful than the other. Dr. Herbert Davies, who introduced this plan, gave no medicine, but allowed the blisters to suffice for everything. The addition of effervescing alkaline draughts, however, is an improvement. Blistering is mainly to be commended for the relief it gives to the pain in the joints. Many doctors like to give large doses of quinine. Now quinine does materially reduce temperature and it will do so in rheumatism as in other maladies, but the disease is not thereby remedied. The drug now principally employed in the treatment of acute rheumatism is salicylate of soda. This substance appears to have almost a specific effect on the disorder, reducing the temperature, easing the pain and generally alleviating the symptoms. In a disease like rheumatic fever, where pain is one of the most prominent symptoms, it may readily be supposed that opium has been employed; nevertheless, it is not usually had recourse to, there being an idea that its exhibition, though useful for the time, would tend to prolong rather than shorten the fever. This belief had its origin in the notion that the disease was due to some *materies morbi* which had to be eliminated, a view which is most probably not correct. At all events, the current of opinion seems to set against the use of opium and in favour of other sedatives. Nitrate of potash has been used by some authorities; it has been given both internally and externally—given, *ad libitum*, dissolved in water, internally to slake thirst, externally to cool the joints. Lemon juice is another remedy which has not received universal acceptation; it may, however, be useful, on account of the citric acid and potash it contains. The diet during the brunt of the malady should be light; slops are generally given—beef-tea and the like. By-and-by, when the patient becomes stronger, fish may be given, but meat must be reserved until a later period; too early use of it may bring on a fresh attack. The patient should have plenty of drink supplied to him by the nurse, he himself not being allowed to move. Lemonade made of lemons and water, with sugar, is best, or soda or potash water may be given; wine must be forbidden; so must, above all things, beer.

In convalescence, quinine or bark and ammonia, and afterwards iron and cod-liver oil are invaluable.

RHEUMATIC GOUT

Rheumatic gout, as the malady is commonly called, is a most anomalous disease. It has nothing to do with gout and nothing to do with rheumatism. The affection consists in an inflammation of the joints, chronic in character and in some respects resembling gout, in others rheumatism; but, in all essential respects, totally distinct. The affection is a most troublesome one and not infrequently cripples the patient, whilst defying the practitioner's art. There is often no constitutional predisposition, hereditary or otherwise, except some cause of general weakness.

Rheumatic gout seizes on various

joints—sometimes the large, sometimes the small; but the hip, shoulder, knees, elbows, ankles and hands are its favourite sites. Often it occurs in females at the turn of life, or about puberty. When acute, the disease comes on abruptly, something like rheumatic fever; but more frequently it sets in gradually, the bowels being out of sorts and the urine loaded and scanty; the joints become stiff and painful and are more or less swollen. This gives rise to lameness and the joints may be felt to crackle as they move, something like a door on ungreased hinges. As the disease advances, the stiffness grows greater and greater, whilst round about the joint are formed great masses of imperfect bone and the cartilage covering the joints becomes absorbed; the joints are thus greatly deformed. The functions of the constitution are badly performed, there is constant indigestion, the rest is disturbed and the patient becomes painfully sensitive to the weather. No heart complication ever results from rheumatic gout.

The treatment is very unsatisfactory. The best thing, short of a visit to a foreign spa, is rest and cod-liver oil. The bowels must be kept open by saline aperients and sulphur waters generally suit well. Arsenical baths have been highly commended. Iodide of potassium internally and alkaline lotions, applied so as to act like poultices externally, sometimes do good, but must not be continued too long, for fear of impairing the constitution. So, too, any fixed appliance to the limb or joint may bring on fixation of the joint—an irreparable mischief.

RHEUMATISM

Chronic rheumatism is a term used to include any chronic inflammation of fibrous tissue, especially that of the muscles, ligaments, and nerve coverings, which is caused by the specific rheumatic germ. The principal symptom is pain, which is almost invariably increased by any movement. It is also increased by such influences as exposure to cold, and indigestion. Chronic rheumatism of this type is very common among middle-aged people, especially among the poor. Generally no alteration in the appearance of the joints can be detected, but a crackling sensation can often be felt when the joint is moved. The joint, however, is stiff and painful on movement and there is a dull aching pain, which is worse at night or in damp cold weather. When the muscles are affected the symptoms are more marked. The pain is usually more severe, and comes on suddenly. There is great stiffness of the muscles, with considerable tenderness. As a result of this the patient keeps the affected part as much at rest as possible. In the way of treatment a calomel purge may be taken at the onset, which may be followed by a Seidlitz powder next morning. In the acute stage, when the pain is severe, fifteen grains of salicylate of soda may be taken every three or four hours, the parts being kept completely at rest until the acute stage is past. After a few days fifteen minutes' gentle massage should be given three times daily. In the way of prevention sufferers from muscular and chronic rheumatism should follow Dr. Symes' advice and make every effort to improve the general health and muscle tone by judicious exercise in the open air—walking, riding, and golfing. The bowels should be regulated by means of cascara sagrada or compound liquorice power, and occasionally a mercurial pill should be taken. Turkish baths taken systematically may prevent the recurrence of attacks. If the tonsils be large, or the seat of chronic inflammation, they should be removed, and chronic rhinitis or pharyngitis should be corrected. Warm underclothing of wool is important; cold and damp, and especially the combination of the two, should be avoided. As indigestion not unfrequently precipitates an attack, the diet must be carefully regulated. The food should be plain, and the quantity of carbohydrates, sugar, sweets and potatoes should be limited. The amount of fluid must be in excess of the normal, and should be taken as far as possible on an empty stomach. A tumblerful of hot water before breakfast and on going to bed, and half a tumblerful half an hour before two meals in the day should be taken in addition to drinks taken with the meals. Ale, cider and stout are not suitable for persons subject to recurrent attacks of muscular or articular rheumatism. *See also* CHRONIC RHEUMATISM.

RHUBARB, *See* MEDICINES, HOME.

RIBS

The ribs are the curved bones which enclose the chest and upper part of the abdomen. They are twelve in number on each side and are attached by their heads to the spine and by their cartilaginous extremities to the sternum, or breast-bone. The seven uppermost are called true ribs, because each of them is connected directly with the sternum by means of a separate cartilage. The five lower ribs are called false, because one or two of them are loose at one end and the cartilages of the rest run into each other, instead of being separately prolonged to the breast-bone. The use of the ribs is to form the cavity of the chest for the reception and protection of the lungs, heart and great blood-vessels, and to assist in respiration by their alternate rising and falling. This action enlarges and diminishes by turns the size of the chest and the capacity of the lungs.

RICKETS. *See* RACHITIS.

RIGOR MORTIS

A term applied to the stiffening or rigidity of the muscles which sets in after death.

RINGWORM. *See* TINEA.

RÖNTGEN RAYS

In 1895, Professor Röntgen discovered that, besides the greenish phosphorescent light, something else came out of the vacuum tube, and in due time he ascertained that these hitherto unknown and invisible rays possessed remarkable properties. In his experiments at one end of the wire was an aluminium cup, at the other a platinum plate. The former was connected to the negative, the latter to the positive terminal of a secondary coil. When the electrons are shot from the aluminium cup in a beam converging on the platinum, the impact is so enormous that it gives rise to a " flash " which far transcends that caused by any other known form of collision. This so-called flash constitutes the Röntgen, or as the discoverer modestly termed them, X-rays. They pierce where light itself cannot penetrate, passing through wood, metallic and other substances, even human flesh. Some of these substances were found to be more transparent than others. When the rays are allowed to fall on a cardboard screen in a dark room the screen is like a sheet of light. If any substance is interposed it absorbs some of the rays and the screen shows a shadow. If the hand be interposed a shadow is cast by both flesh and bones, but that of the flesh is very slight, that of the bones is much darker. This discovery has been of immense value in surgery. The Röntgen rays have been found to exert a curative effect in certain of the more serious skin diseases.

SACRUM, OR OS SACRUM

A large vertebra of the spinal column.

ST. ANTHONY'S FIRE

See ERYSIPELAS.

ST. VITUS'S DANCE. *See* CHOREA.

SALIVA

Ordinary saliva, the watery fluid secreted by the glands of the mouth, plays an important part in the work of digestion. Without the presence of fluid it would be impossible properly to masticate the food or indeed to taste it. The chemical action of saliva consists in converting starch into soluble sugar, and this change is brought about by a ferment present in the saliva known as ptyalin. In addition to water and ptyalin, saliva contains certain salts, chiefly common salt and carbonate and phosphate of lime. It is to the presence of these two salts last named that the deposit of tartar on the teeth is due.

SALIVARY GLANDS

Of these there are three pairs, which are called salivary glands because they secrete the saliva. The principal of these are the parotid glands, situated, one on each side, immediately at the back of the angle of the lower jaw, between that and the ear. They open by a duct upon the inner surface of the cheek and furnish the principal amount of the saliva which serves to moisten the food while undergoing the process of mastication or chewing. These glands are the seat of the affection called mumps. The next pair are the sub-maxillary, situated under each angle of the jaw, and opening by a duct into the mouth, on each side of what is called the frenum, or bridle of the tongue. The other pair are the sublingual glands, so called because situated under the tongue, near its back part. They have ducts by which their secretion is poured into the mouth.

SALIVATION, TREATMENT OF

Various forms of treatment are had recourse to, many of which, however, prove futile in checking it. Astringent gargles may be tried, such as those which contain tannin. Glycerine of borax and rose-water mixed form a useful preparation. Ices to suck may also be tried and so may counter-irritation by means of tincture of iodine over the glands. If the patient suffers from acidity, fifteen grains of bismuth or magnesia may be taken three times a day. Should the discharge be excessive, medical advice should be sought without further delay.

SALT

Common salt, by its stimulant action, promotes the secretion of saliva and of the gastric juice and thereby facilitates digestion. It is a natural and necessary stimulant to the digestive functions and its daily use seems to conduce much to the preservation of health and strength. It is not generally taken so freely as it ought to be by infants and children. It might also be considered as a proof of its necessity, that salt is universally employed by almost the entire human race, whether civilized or uncivilized, irrespective of climate. Even a merely temporary privation of it is almost intolerable, and ashes have been used in such circumstances in the hope of extracting some saline substance. In some countries in which salt, notwithstanding its abundance, happens to be extremely scarce, it is eagerly sought, notwithstanding the heavy expense of its conveyance and portions of it are employed as a medium of exchange, scarcely less important than gold itself. The necessity for salt is shown, not only by its general employment and the pains which are taken to surmount difficulties in obtaining it, but by the injury which the health sustains from the privation of it.

SANATORIA, OPEN-AIR

In consequence of the modern method of treating phthisis, open-air sanatoria have been established at several places specially adapted for the cure of consumption. This method was attended with favourable results when carried out on a large scale at Nordrach in Bavaria and is being hopefully pursued in many countries. The theory of the open-air treatment is to expose patients to sunshine and air as much as possible, irrespective of meteorological considerations, the cardinal safeguard being to prevent the consumptive from catching cold or chill. He is expected to go out in all weathers and may even indulge in moderate hill-climbing, but it is imperative that, should he get wet, his clothing must be changed the moment he returns to the sanatorium and his feet must never be allowed to grow cold. Woollen clothing is the desirable material, blankets must be plentiful and there must be no stint of food. Many sanatoria are wooden waterproof huts, movable by turning on a pivot or as a whole, so that shelter can always be had from the prevailing wind. The windows otherwise are always kept wide open in winter as well as in summer.

SARSAPARILLA, COMPOUND DECOCTION OF

See Decoctions.

SCABIES, CAUSE OF

This disease, which is popularly known as the itch, is unfortunately by no means uncommon. It is always acquired by contagion and for this reason cases seldom appear alone ; others associated with the patient will very likely be affected. It is always caused by the presence, on or under the skin, of a minute animal parasite, the *acarus* or *sarcoptes scabiei*. This insect is exceedingly minute and is only just visible to the naked eye, appearing as a minute white speck if placed on a black background. The female causes the damage, as she bores into the skin to a slight distance for the purpose of laying her eggs. The track which she makes may often be observed as a small black curved line, somewhat dotted in character, and appearing as if a bit of fine sewing-silk had been run beneath the skin for a distance of a quarter of an inch or so. The eggs are deposited in this and the female diets in the burrow. The male is not known to burrow. The actual appearances produced on the skin in scabies vary greatly. Sometimes there is only moderate itching, with little to be seen. Sometimes there are masses of papules or pustules and the sufferer tears the skin greatly. The most common places for the eruption are between the fingers and toes, the wrists and about the soft parts of the feet, especially in children.

SCABIES, TREATMENT OF

The cure for scabies consists in the destruction of the insects whose presence in the skin causes the irritation. Internal medication, therefore, cannot remove the disease, though it may be required in particular patients to restore the lowered health which makes this disease possible. The main reliance is on an ointment compounded of four drachms of sulphur and one ounce of vaseline. Before applying this the patient should take a hot bath and use plenty of soft soap, not being in a hurry to leave the bath. After drying the skin the ointment should be well rubbed into all the affected parts, left on till morning and then removed by another bath. The day and night clothing must be kept wholly separate and all the cast-off clothes both of day and night wear must be thoroughly disinfected before being taken into use again. Any sores due to scratching should be treated with boracic acid ointment.

SCALDS

By scalds are meant injuries inflicted on the body by hot water, oil, spirits, or other matter, which, at the usual temperature of the atmosphere, exists in a fluid state. This term, therefore, is applicable to injuries from steam or vapour, as well as fluids. By the term burns are described all injuries sustained by the body from any inflammable substance in a state of ignition, as coal, oil, fire-damp or other gas : also from heated substances not in a state of ignition, which at the ordinary temperature of the atmosphere are in a solid form, as heated stones, metals, glass, etc., whether these substances be in a state of fusion or in their natural state of solidity. It is not necessary that the water or other fluid should be at the boiling temperature to scald, for water at two hundred degrees of heat, or considerably lower, will scald if applied to a very sensitive part of the skin and retained some time in contact. Generally speaking, the hotter the water, the severer will be the injury sustained ; or, to speak more correctly, the mischief will be in proportion to the degree of heat, the length of time during which it is applied, the extent of surface and the sensibility of the part. A scald may be so slight as to occasion only a little pain and redness and these effects may speedily pass away. In such and even severer cases, where the cuticle or scarf-skin is not raised into a blister, or the true skin injured, the application of cold relieves the smarting and the immersion of the part in cold water, or its free application by sponge or wet cloths, is all that will be required.

SCALDS, TREATMENT OF

The effects of a scald somewhat more severe, but still moderate, are greater pain, more lasting redness and the rising, in a few minutes, of a bleb, or blister. In these cases, cold again is the chief remedy. Immerse the limb in cold water, apply ice to the part, if at hand, or cloths constantly kept wet with cold water, to which, if the skin be not abraded, some neutral salt may be added to increase the degree of cold, as common salt, or saltpetre, or sal ammoniac ; or with a view to producing a far colder fluid, add to the water, from time to time, a small quantity of the combination of salts called freezing powder. Some persons prefer wetting the scalded part with spirits of wine, and this, evaporating more speedily than water, produces more cold and is, therefore, an excellent remedy, when the skin is not already denuded and where expense is not an object. In some cases the application of cold is more conveniently effected by means of poultices, or cataplasms ; in which case, nothing answers better than scraped potato or carrot. Such poultices must be renewed as often as the burning pain, which the application of them instantly relieves, shall have returned. Of this the patient will be the best judge and his feelings must direct the mode of treatment ; or, if the removal of the poultice and consequent exposure to the air aggravate the smarting, it may be kept cold by frequent application of cold water, without removal. The same observation as to the feelings of the patient applies to the renewal of cold water, or wet cloths, used in the ordinary way.

SCAPULA

This is the scientific name given to the broad, flat bone lying at the upper part of the back, familiarly known as the shoulder-blade and so troublesome to many young ladies by its projection. It serves to connect the arm with the trunk of the body and gives origin to many of the muscles by which the former is put in motion.

SCARLATINA

See Scarlet Fever.

SCARLET FEVER, HOW TO DISTINGUISH

Scarlet fever is not usually difficult to distinguish from other diseases, though sometimes cases occur which have a resemblance to measles. The disease first shows itself by producing a sensation of weariness, pains in the back and limbs, headache, shivering, and loss of appetite. The tongue becomes coated with a creamy white fur, with red spots showing through. The throat is sore and red. On the second day of the fever a uniform red rash, consisting of small spots, appears, usually first on the chest and back. Soon the skin has the colour of a boiled lobster. In measles, on the other hand, the rash does not appear until the fourth day of the fever, and consists of crescent-shaped patches; in measles, also, the rash is preceded by running from the eyes and nostrils, which does not occur in scarlet fever.

SCARLET FEVER, OR SCARLATINA

Scarlet fever is one of those diseases that are much dreaded when they make their first appearance in the household, though with proper treatment and careful nursing in the simple form there is really very little danger to be apprehended. It is otherwise, however, in scarlet fever of the malignant type.

SCARLET FEVER, DANGERS FROM

The troubles which may rise out of an attack are frequently the result of carelessness on the part of the nurse, neglect of orders, exposure to cold, etc. There cannot be too much care taken of the slightest case. A bad attack will compel attention, but " slight cases," so called, are often neglected, with fatal results, or lifelong deafness or other disability. Dropsy, malignant sore throat, diseases of the kidneys, weakness of the lungs, pleurisy and many other maladies lie in wait for the scarlet fever patient. "After the fever has passed," says one authority, "there may follow a train of symptoms which are very inconsistent in their character and of much danger to the patient. The throat may continue to be affected and the glands outside may be inflamed and swell, so that the patient's head seems encased in a 'collar of brawn.' Often these glands suppurate and a large ulcerated surface is then seen. Deafness may come on and a discharge from the ear. Bronchitis and pneumonia are not so common as in measles. Sometimes convalescence is retarded by abscesses forming in various parts of the body ; at other times there is a painful affection of the joints, which much resembles rheumatic fever. Renal dropsy is also one of the usual sequelæ, but its frequency varies in different epidemics ; the face and loose parts of the skin are very pale and puffy and this is best seen under the eyes and on the insteps ; the urine is scanty and dark from containing blood ; there is often headache, loss of appetite, and perhaps convulsions ; this complication often comes on two or three weeks after the first appearance of the rash." There is one remarkable sequela or consequence of scarlatina which occurs frequently and therefore deserves particular mention, namely, dropsy. At an uncertain period after convalescence—it may be some days or some weeks—the eyelids become swollen, particularly in the morning ; the whole face, in another day or two, œdematous, that is, pale, swollen and pitting or dinting on pressure ; about the same time the feet and ankles swell towards night ; in another day or two the skin is everywhere tense and pressure with the finger, or any ordinary ligature of the dress, leaves pits and indentations. This general state of dropsy is called anasarca; it is often very slight and easily removed by proper remedies ; sometimes it is rapid in its progress and advances to an alarming and dangerous extent. Another consequence (or rather, in many cases, concomitant) of scarlet fever are glandular swellings about the neck and throat. These often appear early in the disease, dependent, no doubt, upon the ulcerated condition of the mouth and fauces ; sometimes they begin later in the disease and, in either case, are the source of much distress and inconvenience, long after the fever has subsided and the patient become convalescent. These swellings are to be treated in the same way as other glandular swellings. In the early stage, apply leeches and cold lotion; but, as soon as fluid is perceptible, adopt warm fomentations and poultices and let the matter be evacuated with a lancet, as soon as the tumour points, or even sooner, if the fluctuation be very evident.

SCARLET FEVER, PURGATIVES IN

It was the opinion of Dr. Sydenham that scarlet fever is often fatal " through the officiousness of the doctor " : and Dr. Chavasse adds a truer remark was never made. " There is one important caution," says the latter, " I wish to impress upon you : do not give opening medicine during the time the eruption is out. In all probability the bowels will be opened ; if so, all well and good ; but do not, on any account, for the first ten days, use artificial means to open them. It is my firm conviction that the administration of purgatives in scarlet fever is a fruitful source of dropsy, of disease and death. When we take into consideration the sympathy there is between the skin and the mucous membrane, I think we should pause before giving irritating medicines, such as purgatives. The irritation of aperients on the mucous membrane may cause the poison of the skin disease (for scarlet fever is a blood poison) to be driven internally to the kidneys, to the throat, to the pericardium (bag of the heart), or to the brain. You may say, do you not purge if the bowels be not open for a week? I say, emphatically, no. I consider my great success in the treatment of scarlet fever to be partly owing to my avoidance of aperients during the first ten days of the child's illness. If the bowels, after the first ten days, are not properly opened, a dose or two of the following mixture should be given: Take of simple syrup, three drachms; essence of senna, nine drachms; to make a mixture. Two teaspoonfuls to be given early in the morning occasionally and to be repeated in four hours if the first dose should not operate."

SCARLET FEVER, SYMPTOMS OF

Scarlet fever is sometimes ushered in with a convulsive fit and the first paroxysm of fever is frequently attended with vomiting, particularly in children; the pulse is more rapid in this than in any other fever, being frequently in young children 150 or 160 in the minute and sometimes so quick as not to be accurately measured. The tongue is peculiarly red in most cases, or the bright red papillæ are seen standing out prominently from a cream-coloured crust; the whole lining membrane of the mouth, fauces and throat, as far as it is discernible, is, in severe cases, at first bright red and then deep purple, with numerous aphthæ or small ulcers, covered with tenacious ash-coloured crusts, similar to what in children is called the thrush, and also with one or more large and deep foul ulcers at the back of the throat. The inflammation and ulceration often extend over the mucous membrane lining the nostrils, producing a distressing and very disagreeable discharge from the nose; often, too, it extends to the back of the throat, by the duct called the Eustachian tube, to the delicate structure of the ear, producing earache, abscess and discharge of matter from the external ear, always with temporary and not unfrequently with permanent deafness. When the inflammation extends in another direction and affects the glottis, or beginning of the windpipe, it produces the peculiar breathing and other symptoms of croup. The eruption is not an efflorescence only, for sometimes a numerous crop of minute vesicles accompanies the diffused redness, producing a roughness over the surface. The rash, in some mild cases, is scarcely discernible and in many others is so evanescent as to require frequent examination to detect it; you will, in such cases, be most likely to discover it in the evening or at night, at which time there is most fever. After three or four days the rash fades away and the cuticle or scarf skin gradually desquamates or peels off and, in very severe cases, the nails also fall off, wholly or in part. The fever may be of every degree of intensity and, like every other epidemic, varies in this respect in different visitations.

SCARLET FEVER, TREATMENT OF

The case having been declared to be scarlet fever, all the precautions necessary in infectious diseases should be observed and the smallest order of the doctor carried out. This being a disease that must be compulsorily notified, the patient may have to be removed to an isolation hospital. In any case this is always the simplest, safest and wisest plan, since it avoids trouble to the family, lessens the risk of the spread of infection and secures the best advice and expert nursing. If the patient be allowed to remain at home, he should be isolated at once in a room, the higher up in the house the better. The room should be kept at an even temperature of 65° F.; light a fire, if possible, and have the window down at the top. Throw the window open and change the air entirely twice a day, covering the patient, head and all, at the time and until the room is again warm. Do not be afraid of fresh, dry, outside air, but be sure that your patient is covered, head and all, so that no cold air is breathed while you are airing and warming the room. Give the patient two or three times daily a warm sponge or plunge bath, being very careful that he is covered with a blanket, thrown over the bed or tub, during the bathing; dry quickly with warm soft towels, without rubbing, and, as the patient lies in bed, rub the entire surface of the body with vaseline, or whatever oil the physician orders. The bed-clothing should be warm, but never heavy. Keep the legs and feet warm. Gruels, simple broth, milk, etc., are generally enough by way of food. Where there is exhaustion from the fever, the doctor will give orders as to strong and stimulating nourishment. Abandon the notion that the fever is increased by such food; life will depend upon its careful administration. Cold water and weak lemonade may be given freely, unless the doctor forbid them. Keep the patient strictly in bed; make use of the bed-pan and urinal to save the necessity for rising. Guard in every way against a check of perspiration. If the patient is propped up in bed, see that a short jacket or small shawl is put over the nightdress, but use nothing that cannot be washed. Notice the breathing at night or in sleep, whether it be even and deep, or short and laboured, as if there were trouble with the air-passages. Be particularly watchful of the condition of the excretions, especially of the urine; should it become scanty or smoky-coloured, report it at once to the physician. Observe whether there is a free though seemingly harmless discharge from the nose; this may indicate diphtheritic trouble. See whether there is any swelling of the limbs. In short, there is nothing which must not be observed with care and reported accurately to the doctor. The skin becomes dry and generally begins to scale off about the fifth day after the rash appears. No patient should be allowed to leave his bed until this process is completed. The warm baths should be kept up, the slightest chilliness guarded against and the temperature of the room allowed now to be 70° F. After the peeling is over, the patient should still remain in his room for two weeks, and should be separate from other members of the family not less than a month from the onset of the disease. Very severe cases of scarlet fever may follow from exposure to light ones. See that the patient is well wrapped up, with hands and feet protected, on first going into the open air. Most cases recover in a week, except those which are malignant and those in which the patient, if a woman, is at the same time pregnant. The latter condition much increases the danger, and hence women should then be extremely careful not to go near a case of scarlet fever. The mild cases must be nursed simply. Malignant cases may develop the gravest features at once and die within forty-eight hours. Ammonia and brandy must be given when the state is one of great prostration. Gargles are not of much use to the throat ; brushing the fauces over with tannin and glycerine, or with a solution of nitrate of silver, is the best remedy. In cases of discharge, the ear must be syringed with warm water three or four times a day and a little cotton-wool should then be pushed in.

SCIATICA

This is a form of neuralgia which, in a good many respects, differs from others generally comprehended under this name. The pain most frequently affects the hip or buttock, and extends downwards from the point where the great nerve of the lower extremity issues from the trunk to the space behind the knee. It may even extend farther, so as to affect the nerves of the leg and foot, but in all cases the pain at the back of the buttock is more severe than elsewhere. Sometimes the pain arises from pressure on the nerve within the abdominal cavity, from enlargement or displacement of the womb, for instance. Or the great gut may be distended with fæces and press upon it, for the pain in the buttock is very often accompanied by constipation. Again, in a goodly number of instances the pain seems due to inflammation or some analogous change in the health of the nerve itself. If so, the patient has most probably a rheumatic taint, or has been exposed to cold or wet. In rheumatic cases, especially in sciatica, dependent on this cause, iodide of potassium is the remedy. Full doses of ten grains or more must be given. Bicarbonate of potash is useless. In neuralgic headache, sal ammoniac often does the greatest good. This, too, must be given in large doses—thirty grains or so ; and it does not always succeed. In sciatica local remedies have, as a rule, more power than general ones. This is hardly true of real neuralgia, though even in this local remedies seem to surpass all others ; moreover, it seems to be best adapted for those very cases which we cannot treat otherwise : we allude to the continuous current of electricity. This form of electricity is to be carefully distinguished from the interrupted current, which not only is of no use, but may do harm. The continuous current is that which does most good in true frontal neuralgia. Other local means have been tried—blisters, red-hot irons, ointments containing aconite and other powerful drugs ; all have been tried and too often tried in vain. As a rule, if the neuralgia depend on a local cause, it will disappear with the removal of that cause and will not disappear until it is removed. Thus it is utterly useless to apply soothing remedies, ointments, lotions, or what not, for a neuralgia dependent on a bad tooth or diseased jaw. Once these are seen to, the neuralgia will go. With sciatica it is different ; very frequently it is greatly benefited by bathing in a hot saline fluid, like some of the Continental mineral waters, especially if the douche and shampooing are had recourse to. Many cases of sciatica are thus cured and many more might be if the treatment were employed. Acupuncture was at one time largely utilised for sciatica and in many cases it did well, but in others again it did not. In some cases the injection of morphia into the parts about the nerve may be said to cure the sciatica ; but even when the pain is removed, a long course of time and remedies must be employed to restore perfect health. Blisters over the course of the nerve have been followed by good results, especially when a little morphia has been sprinkled over the denuded parts ; but hypodermic injections and the local application of hot medicated waters are the best and most trustworthy remedies for sciatica.

SCLEROTIC

(Greek, **skleros,** "hard").

The sclerotic coat, or white of the eye, is dense and fibrous and forms the most external covering of the posterior four-fifths of the eyeball. Internal to it is a dark vascular covering, termed the choroid coat. This proceeds as far forwards as the ciliary circle and is then reflected back towards the vitreous humour, forming the ciliary processes. Immediately within the choroid is found the retina, or nervous coat of the eye, which is seemingly the expansion of the optic nerve. This coat receives the picture of external objects and from it impressions are conveyed to the brain by the optic nerve.

SCRIVENER'S PALSY

This is an exceedingly curious form of nerve-affection, which, fortunately, is not very common. It is also called writer's cramp, apparently from the fact that it most commonly attacks those who make a prolonged use of the pen : but it is not confined to these and may attack almost any handicraft worker. The mischief lies in a want of co-ordinating power in the muscles, which have long been accustomed to fulfil one definite function. Each one seems to act independently and so it becomes quite impossible to call them into simultaneous or concerted play.

SCRIVENER'S PALSY, SYMPTOMS OF

At first there is merely unsteadiness or stiffness after a long day's work, which speedily passes away ; but by-and-by this makes mischief, for the writer scrawls at some point, perhaps, where he wishes to be most particular, the pen darting away at an angle. As the disorder advances, the patient gets worse. As soon as the pen is touched, off moves the arm at a tangent, so that it is impossible for him to write even legibly. At the same time, curiously enough, he may be perfectly able to use his hand for other purposes ; but the moment he takes a pen in hand it becomes altogether unmanageable.

SCRIVENER'S PALSY, TREATMENT OF

There is only one remedy—that is, giving over the kind of work which has produced the malady. The patient may do anything else he likes, but it is useless to attempt to carry that on ; and though it appears late in life, the patient must seek another vocation. The sooner this is fairly faced, the better. If it comes on in one who can afford complete relaxation and who can go abroad and travel for a time, he may come back perfectly well and able to take pen in hand again for a moderate time only. Not so one who can only take partial rest : that is simply useless. The great remedy is the continuous galvanic current and rest. Codliver oil, good food and strychnine, with change of air, should be had, if possible.

SCURVY

Scurvy is a diseased blood state induced chiefly by prolonged privation of fresh vegetable and animal food. Although not exclusively a sailor's malady, its ravages have been most disastrous at sea, formerly devastating the navies and merchant marine of all nations. Pizzaro's squadron included two thousand seven hundred men, of whom only one hundred survived. Ships were often lost adrift at sea, the crews, unable to work, perishing. Lord Anson's fleet, in 1742, in nine months lost six hundred and twenty-six out of nine hundred and sixty-one men. The chief cause of this pest of the marine was the exclusive diet—salt meat and hard dry bread with impure and deficient drinking water—upon which sailors subsisted during prolonged voyages. Exposure to cold or to tropical heat, fatigue and the insanitary and foul condition of ships contributed to the development of scurvy. As early as 1617, John Woodall recorded the virtues of lemon juice in curing this disease and in isolated cases its use and a vegetable diet saved the crews so treated. But not until the latter half of the eighteenth century were improved hygiene and vegetable diet at sea enforced. Thus, only thirty years after Lord Anson's fearful loss, Captain Cook sailed on a three years' voyage round the world, losing only one man by disease.

SCURVY, PRECAUTIONS AGAINST

The following suggestions have been issued by the Board of Trade for the information of ship-owners and ship-masters :—

" Every ship on a long voyage should be supplied with a proper quantity of lime or lemon juice.

" The juice having been received in bulk from the vendors, should be examined and analysed by a competent medical officer. All measures adopted for its preservation are worthless, unless it be clearly ascertained that a pure article has been supplied.

" Ten per cent. of brandy (spec. grav. 930), or of rum (spec. grav. 890), should afterwards be added to it.

" It should be packed in jars or bottles, each containing one gallon or less, covered with a layer of oil and closely packed and sealed.

" Each man should have at least two ounces (four tablespoonfuls) twice a week, to be increased to an ounce daily if any symptoms of scurvy present themselves.

" The giving out of lime or lemon juice should not be delayed longer than a fortnight after the vessel has put to sea."

SCURVY, SYMPTOMS OF

First, there is a change in the colour of the skin, which is pale or sallow ; then the mind becomes listless and the patient is averse from taking exercise and seems apathetic. There are pains about the limbs and so the sufferer is glad to lounge about and rest himself. Gradually purplish spots, or petechiæ, are observed, especially about the legs and thighs ; they are not usually raised above the surface of the skin ; then large patches form, as if numbers of these small spots had run together ; and often there is an appearance as if the patient had been bruised. The lips are pale, the face becomes bloated, the conjunctivæ of the eyes grow swollen and red. The gums, at first pale, begin to swell at their free margins, so as to encroach upon and almost envelop the teeth ; they then become spongy, dark-red, or livid—not painful, but disposed to bleed when irritated. Sometimes the teeth are loosened and fall out ; there is also a sickening fetid odour from the breath. Chewing is now rendered impossible and even fluid food is swallowed with difficulty. Often swellings occur in various parts of the body and chiefly near the bend of a joint ; the most common seat of this condition is the ham and, next, the elbow, or beneath the jaw. There is often breathlessness and syncope, or fainting ; this is dangerous, as sudden death may, in this way, take place : therefore, any one who is bad with scurvy should be kept in the recumbent position and not be allowed to sit. In bad cases ulceration of the skin often comes on and may spread rapidly and be attended with dangerous bleeding. Very little difficulty can occur in making out a case of scurvy, especially if the antecedent conditions be known.

SCURVY, TREATMENT OF

This must consist in supplying the patient with the material the deficiency of which has produced his disorder. It is wonderful how, in a very bad case, an immense improvement will take place in a few hours by lime juice. Amongst the vegetables which may be given are oranges, lemons, limes, cabbages, lettuce, potatoes, onions, mustard and cress, dandelion, scurvy-grass and grapes. An ounce of lemon juice should be issued daily when vegetables run short. The other articles of diet must be so arranged as to be easy of digestion.

SEA-BATHING

This invigorating and wholesome exercise affords much pleasure to those who are healthy and strong and may be indulged in with impunity daily in summer. Sea-bathing is also of great service in some diseases, especially when there is debility ; but great caution is needed in such cases, or mischief may accrue. Persons in a delicate state of health begin by taking one or two tepid salt-water baths and then one or two quite cold, by way of a preparation for the open-air bath, which should be taken about eleven or twelve in the day and, if possible, in bright sunshine. The first bath should be little more than a plunge in and out, gradually extending the time to five or ten minutes. Brisk rubbing with a rough towel and a sharp walk or run should follow. No doubt much of the supposed advantage of sea-bathing is often due to the sea air and other advantages, mental, physical, and social, which belong to various watering-places ; but this combination of favourable conditions is invaluable and even a single day at the sea-side may produce a marked improvement in those whose health has fallen below the normal.

SEA-SICKNESS, CAUSES OF

In ordinary circumstances a person goes on board ship without any preparation. As soon as the vessel begins to answer to the motion of the sea, the passengers begin to feel queer, especially if they have been eating and drinking more than has been good for them before putting to sea. There can be no question of the fact that the motion is the main cause of the nausea, for it is much worse in a small boat dancing freely on the water than in a large vessel, which is comparatively steady, and it is worse in what is called a chopping sea than in a regular even swell, especially if the vessel be small enough to respond to all the movements of the waves. The motion communicated to the vessel is communicated to the passengers ; the crew have their sea legs on board. To them the motion is nothing : they balance themselves as easily as on land. But the freshly embarked passenger cannot do this ; he cannot balance himself ; he is in constant danger of falling, or seems to be so, and his body is agitated in endeavours to support himself. These violent efforts induce motion in the organs contained in the abdomen and doubtless also the nerves which supply them. Of course, if the viscera are overloaded, the attack comes all the more speedily. A sudden feeling of nausea causes the entrance to the stomach to relax ; the motion superadded to contraction of the abdominal walls speedily causes evacuation of its contents and one act of vomiting begets another. Meanwhile, the original cause of the mischief, the motion of the vessel, continues and the stomach, now rendered irritable, responds more easily to this stimulus and so the sickness is kept up. Just behind the stomach and liver lie an important group of nerves, which partly control the heart's action ; the motions of the organs in the abdomen much affect that and so perhaps the feeling of nausea, as well as the attempts at vomiting, is sustained. But vomiting always ends in producing intense depression ; it tries every muscle in the body—nothing exhausts like it ; and when to the former nausea and retching is added this feeling of exhaustion, the full misery of sea-sickness is developed. But by-and-by, as the system becomes habituated to this motion, the new sensations pass away, perhaps to return no more until the next time the patient ventures to sea.

SEA-SICKNESS, PREVENTION OF

Prevention is better than cure and of nothing is this truer than sea-sickness. As, moreover, many of us cannot stay at home for ever, it is better to try to understand the best method of avoiding the scourge if we can. In a short voyage, as across the English Channel, we may expect or hope to avoid sea-sickness ; in a longer one we can hardly do so. Should we desire to avoid the nausea and discomfort it is best to have the bowels well opened the day before, so that there shall be no oppression. We should also take care that the stomach is not over-loaded ; but as retching on an empty stomach is not pleasant, it is desirable to take a little food an hour or two before embarkation. Drinking and smoking, especially in those not accustomed to either, are strenuously to be avoided, as tending to render the stomach irritable. When the traveller goes on shipboard, he should select a spot where the movement is likely to be smallest—that will be as near the centre as possible—and then, as the motion of the body standing is greater than sitting and sitting than lying, it is best for him to lie down.

SEA-SICKNESS, TREATMENT OF

As to internal remedies, all things have been tried ; none do so well as spirit of chloroform, which used to be called chloric ether. Thirty drops or even a teaspoonful of this may be taken in a little water as soon as the traveller goes on board and has lain down. For it is not given with a view to cure, but with a view to prevent the nausea. Certain it is that in a number of cases spirit of chloroform enables the stomach to meet the shocks better either by stimulating it or by soothing it ; at all events, in a short voyage there is a good chance of escaping. In a longer voyage, when the sickness is passing away, dram doses of aromatic spirit of ammonia with a little spirit of chloroform should be given, but a still better pick-me-up is iced champagne. A simple method for the prevention of sea-sickness has been recommended by a French authority. A few drops—say, from two to five—of the nitrate of amyl are applied close to the nose by means of a handkerchief. The inhalation must be rapid, care being taken to prevent the mixture of atmospheric air in any great quantity. The patient will soon feel a sense of pulsation in the temples, and the face, losing its deadly hue, presents a light rose colour. These signs of salutary reaction continue for about half an hour, after which the individual falls asleep. The sickness may return in twenty-four hours or so ; the inhalation in such case must be repeated as before. The remedy appears to act most efficaciously when employed immediately after the first act of vomiting. This method was tried on 124 persons. In 121 cases the sickness was stopped at once ; that is to say, no efforts of vomiting were noted. In the remaining three cases it was necessary to repeat the inhalation three times before the desired results were obtained.

SEBACEOUS GLANDS

(Latin, **sebum**, " tallow ").

Besides the sudiparous, or sweat glands, there is another glandular apparatus, situated in the skin, which is of especial importance, particularly as in these glands one of the commonest and most annoying of skin diseases, acne, has its seat. These are the sebaceous or sebiparous glands. While the sweat glands are composed of a single tube coiled upon itself at its lower extremity, which is situated in the very deepest portions of the skin, the sebaceous glands are rarely if ever formed of a single tube, but have a duct more or less straight, with a mass of glands grouped about its deeper end, forming what is known as a racemose gland, from the resemblance to a cluster of grapes (Latin, *racemus*). The sebaceous glands are almost invariably connected with the hairs; upon hairy parts, as the scalp, they form appendages at the sides of the hairs and their ducts open into the hair follicles. Generally there are two to each hair, opposite each other ; but in some situations large hairs have a number, even from four to eight, around them, forming a sort of collar about the hair. In some situations, on the other hand, as on the smooth face, nose, forehead, etc., the hairs are very small and rudimentary, while the sebaceous glands are large and the hair there appears as an appendage at the side of the comparatively large gland. Very few of the glands open directly on the skin without a connexion with a hair, although this latter may sometimes be so small as to escape ordinary observation. The secretion from these glands is of an oily nature and when in healthy condition is perfectly fluid at the temperature of the body. The quantity is not very great and the main function of the secretion appears to be to keep the skin in a flexible state. They are similar in structure to the mucous glands, but secrete an oily or fatty fluid, which forms the suet or fatty portion of the body.

SEBACEOUS GLANDS, DISEASES CAUSED BY DISORDERS OF

When there is disorder of these

glands, we have, as mentioned already, acne, and also one of the various forms of dandruff, or seborrhœa, and comedo, or what are popularly known as flesh-worms, etc. In certain circumstances they fail to act, more or less, and we have a hard, dry skin—scleroderma. In the proper care of the skin, the oily products of these glands, which adhere to it with the dead epidermal matter, are removed continually ; when neglect allows this to accumulate, the openings of the sebaceous as well as those of the sweat glands are clogged, work is thrown on other organs of the body and slow disease is engendered.

SEBORRHŒA

Seborrhœa, or acne sebacea, is a disorder of the sebaceous glands which is very frequently found to accompany ordinary acne, but which may occur alone. This consists in an abnormal or unhealthy secretion of these glands and shows itself on the surface either in the form of a greasy coating or condition of the skin or scalp, or in the collection of yellowish scales which are very greasy. Many faces are always greasy and oily and it is only with the greatest difficulty that the deformity can be hidden ; and, again, we occasionally have a scalp whose hair is in such a constant state of oiliness as to be very distressing to its owner.

The dry form of seborrhœa appears sometimes on the face, especially on the nose and cheeks, but more frequently upon the scalp in the form of whitish or yellowish greasy scales. Upon the scalp it forms much of so-called dandruff and is a very annoying complaint. Not only is it annoying from the constant shedding of the scales, like snow, upon the clothing, but it is particularly uncomfortable, because it is surely attended, sooner or later, with loss of hair. In many of the cases of alopecia, or loss of hair, this condition has preceded. The popular idea is that the dandruff, destroying the hair, "eats it off," as the patient says. This is not wholly true, but, like so many popular ideas, there is a grain of truth in it. Seborrhœa causes loss of hair in two ways : firstly, because the hair loses its proper lubrication, which should come from the oily secretion poured upon it continually by the sebaceous glands, their secretion drying into scales ; and secondly, because the same causes which produce the seborrhœa operate also to undermine the nutrition of the hair and it falls off in consequence. The dandruff does not " eat off the hair," but should not be neglected, because its natural end is in baldness.

SEBORRHŒA, CAUSES OF

The causes of seborrhœa are the same as those of acne and the dietetic and hygienic rules of the one apply to the other. It is a disease of debility, like acne, and requires tonics.

SEBORRHŒA, TREATMENT OF

It is useless to try to remove seborrhœa permanently by washing or combing the head, or by stiff brushing. These measures often aggravate it. There should be a certain amount of brushing daily, but with a comparatively soft brush ; while the fine-toothed comb, by removing a considerable quantity of greasy matter adhering to the scalp (which would subsequently dry and fall), gives relief for a longer time ; still, by the irritation following its use, it may rather aggravate the disease. The scalp should be occasionally washed out and an ointment, or some oily matter, applied immediately thereafter. The most harmless application and yet one often of very great service is a pomade made of one drachm of tannin in an ounce of rose ointment. It should be applied to the roots of the hair and well rubbed into the scalp. Another remedy of value is castor oil and alcohol, with a little spirit of rosemary. The careful use of these will generally keep the trouble in check ; but as seborrhœa, like so many skin affections, is a sign of debility, or often of imperfect digestion, permanent relief can be expected only from a thorough investigation of the cause and condition of the patient.

SECRETION

The name given to the process by which substances, different in their nature from the blood itself, such as saliva, bile, urine, etc., are separated from the blood, from which they are derived. The name given to the process is also applied to the substances separated by the process, and hence saliva, bile, urine, etc., are called secretions.

SENNA, COMPOUND INFUSION OF

See Infusions.

SENNA, COMPOUND MIXTURE OF

See Draughts.

SENNA, CONFECTION OF

See Electuaries.

SEPTUM OF NOSE

The two nostrils are separated from each other by a bony cartilaginous "septum" or division ; they are lined by the mucous membrane which secretes the peculiar mucus of the nose. This membrane is continuous with that of the eyes, through the canal or lachrymal duct, which conveys the superabundant tears into the nostril ; it is also continuous with that of the throat.

SEROUS MEMBRANE

This membrane envelops the brain, lines the chest and abdomen and covers the lungs, stomach, intestines and other organs of the abdomen and chest. It has a smooth, shining appearance and is constantly moistened by a watery, or serous, exhalation, in consequence of which it receives its name. It has different names, however, in different parts of the body, according to the cavity it lines. In the chest it is known as the pleura, and when inflamed the disease is called pleurisy. In the abdomen it is called the peritoneum, and that which surrounds the brain is known as the arachnoid. In a state of health it is white, but when inflamed it becomes red, the vessels being charged with blood ; it is also apt, when inflamed, to form adhesions to the parts on each side of it, so that the lungs may become glued to the ribs, or the intestines to the internal surface of the abdomen, or to each other. Dropsies are caused by the exhalations from this membrane, the water collecting in cavities and not being carried off by the absorbents.

SERUM

The thin watery fluid which separates from blood when clotted or coagulated, as the whey or watery part separates from the curd or fatty portion when rennet is infused in milk.

SHELL-FISH

Shell-fish contain about 13 per cent. of solid matter. Oysters are the easiest of digestion. Lobsters, crabs, mussels, etc., are more difficult to manage, especially when not well cooked, and the last-named sometimes cause serious injury.

SHELL-FISH, POISONOUS

Mussels and some other shell-fish have been occasionally known to disagree, producing sickness, giddiness, swelling of the face, with an eruption like nettle rash; and sometimes more alarming symptoms, as violent pains in the stomach and bowels, convulsions and even death. The treatment is an emetic, a purgative, then twenty or thirty drops of ether on a lump of sugar; and if the distressing symptoms have not soon subsided, ten or fifteen drops of laudanum may be given in a little brandy and water.

SHINGLES

See Herpes.

SHORT SIGHT

See Myopia.

SHORT SIGHT, GLASSES FOR

See Spectacles.

SHOULDER, DISLOCATION OF

If the shoulder be supposed to be dislocated and you are sure there is no fracture, no harm will arise from your trying this simple experiment, which will sometimes occasion the replacement of the bone in the socket. Gently raise the extended arm by the wrist and elbow, until it is elevated a little above the horizontal line and then allow it suddenly to fall by its own weight; upon which the head of the bone will sometimes resume its place in the socket; but if it does not succeed the first time, do not repeat the experiment. Nor should any attempt be made by inexperienced laymen to reduce this or other dislocations by pulling at, or extending the limb, as much anatomical skill is required for the proper conduct of this treatment. Reduction of dislocation of the shoulder-joint by means of placing the heel in the axilla is the method of reduction most generally employed. The patient is placed in the recumbent position upon a couch or bed. The surgeon then seats himself beside him and, having taken off his boot, places his foot in the axilla of the dislocated shoulder, making it act as a fulcrum. He then draws the arm steadily downwards, when in most cases the reduction will be readily effected.

SHOULDER, DISLOCATION OF THE, REPETITION OF

When the arm has been once dislocated, it is very liable to be dislocated again and again by any jerk of the elbow upwards, or even in the simple effort to put on a coat. The person soon becomes well aware of the injury and, finding that he can neither get his elbow close to his side nor raise it to a level with his shoulder, is pretty sure that he has put his shoulder out, as he has done before. In general, the more frequently the bone is put out, the more readily is it put in if only managed the right way and shortly after its occurrence. A person who has repeatedly dislocated his shoulder may, if he have courage to bear a little pain for a few minutes, even manage himself to reduce it. If the accident has happened in the fields and there be a five-barred gate at hand, all he has to do is to get his arm over the top rail and, having grasped the lowest rail he can reach, hold fast and let his whole weight hang on the other side of the gate; if he then make some little attempt to change the position of his body, still letting his weight tell on the top of the gate, the bone will probably slip into its place and the assistance of a surgeon be rendered unnecessary. Nevertheless, it is far better to run no risks. The reduction should be left to the doctor.

SICK PERSONS, DANGEROUS VISITS TO

Every one who has occasion to visit a person suffering from an infectious or contagious disease should take care not to do so on what is called an empty stomach. The visitor must not be weakened by the cravings of hunger and want of food. It may be well, too, to guard mouth and nostrils with the breathing apparatus commended by Professor Tyndall, who held that contagious and infectious diseases were conveyed by means of germs floating in the air and supposed they might be thus stopped on their course to the mouth and lungs and prevented from poisoning the body. A handkerchief, or some flocks of cotton or wool, will answer the purpose if the more artificial contrivance is not at hand.

SICK-ROOM, TEMPERATURE OF THE

The temperature of the sick-room should be a matter of primary importance and yet it is frequently neglected, as if it were not essential in the treatment of disease. Those suffering from fever, or from chest complaints, cannot fail to be affected by the temperature of the apartment in which they lie and yet how often do we find the room allowed to get close and over-heated and the window, which till now has been closed, thrown suddenly open to allow a supply of fresh air to enter the room ! Or, again, the window may have been kept open a few inches and the air may have been entering the room imperceptibly, but in sufficient quantity to keep the atmosphere cool and fresh, when the nurse, who has allowed the fire to get very low, suddenly takes to heaping it with coals and, after perhaps filling the room with smoke, the fire blazes up and cold air rushes in with greater rapidity. The patient suffers from what might easily have been prevented and ought never to have occurred. A good fire in the sick-room, kept burning equably, will suffice to maintain a uniform temperature, but care must be taken to have a clean chimney. The temperature which answers best in the sick-room in most cases is, in a general way, one about 60° F. Should it be found desirable to increase this, it can be easily done by permitting steam to pass into the room from a kettle ; or if, on the other hand, it is necessary to cool the air of the apartment, this can be readily accomplished by placing a shallow dish containing pieces of ice in the room, or by suspending a piece of cloth that has been previously moistened with water.

SICK-ROOM, OBSERVATION IN

There is, perhaps, no habit so little cultivated by those who have charge of the sick as the habit of observation. Attendants and friends alike fail in the exercise of it and much information that would be of value to the doctor is thus lost. All ambiguous language should be avoided in reporting upon the condition of a patient and guessing at the truth is extremely improper. When information upon any point is asked for, only that which is definite is desired and that alone should be given. A doctor would far rather have the nurse or attendant acknowledge ignorance in regard to what is asked than have attempts, which can only prove misleading, made to answer his questions. If the information thus supplied should be misleading rather than guiding in its nature, the patient may suffer in consequence. It is desirable to note in every case the quantity of food taken by the patient, his sleep and appearance on awakening from sleep, his respiration, pulse, temperature, cough, evacuations, urine, temperament, fever, etc. Besides these observations, there are other things which should be noted and reported to the doctor at his visits. Thus, if a patient is suffering from a cough, the frequency of the paroxysms should be noted ; the time of their occurrence, whether during the early part of the night or towards morning ; their duration, whether a few minutes or half an hour ; also the appearance of the patient during the continuance of the paroxysms. In whooping-cough the face becomes congested and of a purplish hue during the paroxysm ; while in consumption it remains pale and is bathed in perspiration. The character of the cough should also be observed. In croup it is hard, barking and has a peculiar metallic ring about it, whereas in bronchitis it is softer. No less important is it to observe the appearance of what has been expectorated. Much valuable information is to be derived from a careful examination of the sputum and the preservation of it for the doctor's inspection should never be neglected. In pneumonia, or inflammation of the lungs, the sputum has a rusty appearance ; in pleurisy it is frothy ; in bronchitis it consists of viscid mucus ; while in consumption it is streaked with blood. As the evacuations from the bowels frequently afford much information in connexion with a case, they should be preserved for inspection. It is also very necessary to preserve a quantity of the patient's urine, as this also often throws light on a case. The physiognomy of disease is often spoken of and, if carefully studied, may be of much value ; those who are in attendance upon the sick should strive to make themselves familiar with its varied manifestations as these come under their observation. There are also peculiarities of temperament, a correct knowledge of which, on the part of the nurse or attendant, may save the patient much annoyance. As these differ in individual cases, a careful study of each is necessary to make one familiar with it; but when this has been done, much may be achieved in the way of avoiding those things which are known to be sources of irritation to a patient and rendering his illness much more bearable than it would otherwise be. During the progress of disease it is important that the nurse or attendant should be able to recognize those symptoms which denote recovery and those which denote the reverse ; and yet there are few who are able to distinguish between the one and the other. After many fevers recovery is slow and it may be long before the patient is able to stand on being taken out of bed ; and yet, if his appetite return and he begin to take food with greater relish, he may be looked upon as progressing. Again, if a patient who was able to stand or sit up in bed is unable to do so any longer, although, in other respects, little alteration may be noticed in his condition, he is undoubtedly becoming weaker. These changes, especially in chronic cases, are frequently allowed to pass by unnoticed and the end often comes unexpectedly, when more careful observation might have warned the friends of its approach. The work of the doctor would be greatly augmented and facilitated if, in every sick-room a chart were kept to record facts—especially such as have been indicated—in connexion with each case. The more important to note, if such a method should be adopted, are those connected with the pulse, which ought to be recorded regularly night and morning ; also the number of respirations and any peculiarity that may be observed in connexion with the breathing. Observations concerning food and sleep are also most important.

The amount of fever may be roughly estimated by means of the hand. True observations in regard to this can only be made by employing the thermometer ; but as this requires skill for its proper application, it had better be left in the hands of the doctor. If a record such as this were kept, he would be able to see at a glance the condition of his patient during the time that elapsed between each visit and, by the information thus obtained, added to the facts which he himself had observed, would be enabled to judge more definitely of the real progress of the case. The value of adopting such a plan will be more apparent when it is considered what effect the doctor's visit frequently has. How often, when his footstep is heard on the stair, does the patient become flushed and excited and his pulse quicken ! Now, unless the doctor can remain till all excitement has disappeared, he may easily take away an erroneous impression with regard to the case. In order that the facts recorded by those who have the care of the sick may be of value, the observations must be made methodically and shown to the doctor at each visit. In all cases of serious illness, whether a trained nurse can be secured or not, there must always be some one person in the family responsible for the patient and to the doctor. Two or three different persons taking orders and reporting symptoms will invariably make confusion and mistakes.

SICK-ROOM, VENTILATION OF

It seems almost superfluous to recommend that the sick-room is properly ventilated and yet nothing requires to be more frequently reiterated, because nothing is more often neglected than this. Do we wonder that disease remains so long with us, that its virulence is so greatly increased and that death snatches so many victims, where the health-giving influence of pure air is thus ignored ? By a proper supply of fresh air in health, how much sickness might be avoided ; by a sufficient supply in disease, how many deaths averted ! And yet we are heedless of all this and, from day to day, go on inhaling impure air and coop it up in our sick-rooms till the atmosphere we breathe is laden with the germs of death. Foul air is really more injurious to the sick than to the well, for with the latter its effects are somewhat counteracted by the pure air which they will usually get out of doors some time during the twenty-four hours ; but the sick often remain for weeks in the same room, breathing over and over again the air which has been made foul by the breath, exhalations from the skin, from the evacuations of the bladder and bowels, from discharging wounds and various other sources, until they themselves, as well as the clothing, furniture and walls, become saturated with noxious gases. The attempt is never made to drive out this vile air and to furnish in its place an atmosphere which is not lacking in the life-giving element—oxygen. Popular ignorance and indifference in regard to ventilation, a subject at once so vital and so simple, is as astonishing as it is profound. In the case of the sick, where the exhalations of the body are increased and effluvia from discharged excretions are superadded, the atmosphere of an apartment is soon vitiated and rendered unfit for the purposes of respiration. Hence the demand for pure air becomes more imperative and the necessity of complying with that demand even more essential than in health. Many people are under the impression that, in order to have a sick-room thoroughly ventilated, the patient must be constantly shivering from cold ; but this is altogether a mistake. It has been frequently remarked that the mere admission of cold air into a room does not imply its proper ventilation, however large the quantity may be ; for the air so admitted may have come from a hall, itself badly ventilated, or from unoccupied rooms, the windows of which are never open. Many artificial methods of ventilation have been invented and employed, but none is so useful, because none is of so universal application, as the system of ventilating by means of the window and the fire. And yet how often do we find these means of ventilation neglected and the patient breathing an atmosphere prejudicial to his recovery, from carelessness on the part of the nurse ! Earnest attention should be paid by those who have the care of the sick to see that these things are not neglected. On opening the window there is no necessity that the patient should feel cold and care must be taken that he does not. The bodily temperature must be carefully maintained and an extra supply of blankets or hot bottles supplied whenever these are necessary. Sometimes the bed is so placed that whenever the window is opened the patient is exposed to a draught, with all its evil consequences. In order that no risk may be run, the bed should be removed at once and placed in such a position that all harm from this cause shall be obviated. Care should also be taken that while the door of the sick-room remains open the window is closed, otherwise the patient may be exposed to a draught. The condition of the fire ought also to engage attention, as, without due regard to this, the ventilation may be very imperfectly carried on. It must not be permitted to get too low and then be suddenly heaped up with coals, as by so doing the room will be filled with smoke and the patient subjected to much unnecessary inconvenience. What a source of atmospheric contamination is to be found in the chamber being allowed to remain in the room ! Frequently it is placed under the patient's bed and allowed to remain there till the nurse finds it convenient to remove it. This ought never to occur. Whenever a chamber has been used, it should be removed from the sick-room (and should always be under cover) and before bringing back, it should be properly rinsed. On no account should it be allowed to remain, even for a few minutes, in the room. Slop-pails should, under no consideration, be admitted into the sick-room. Cooking and everything that would render the air of the sick-room impure must not, of course, be permitted ; besides, a patient is much less likely to partake of food that has been cooked in his presence than he is of that which has been prepared out of his sight and brought to him in as enticing a manner as possible. A great dread prevails in regard to night air and many, even in health, prefer to sleep in a close and stuffy atmosphere and awake in the morning unrefreshed, rather than have the window of their bed-room down a few inches at the top. When we see such fear in health, can we wonder at the careful manner in which the night air is excluded from the sick-room? We fancy, when the window is closed, that we have shut out this supposed deadly enemy and may rest in security; and yet what have we done? Have we, by closing the window, excluded the night air, and, if so, what are we inhaling instead? Air vitiated to a dangerous extent with carbonic acid gas, compared with which the dreaded night air is as a blessed and balmy spring breeze.

SICK-ROOM, VISITORS IN

The admission of too many people into the sick-room is a fruitful source of harm to the patient. Many friends, doubtless well-intentioned, come in and keep up an incessant conversation either among themselves or with the patient and so do him an injury. While they are there, the patient is probably flushed and they tell him he is looking so much better; but, could they see him some time after they had left and when reaction has occurred, they would find reason to change their mind and realize the thoughtlessness of their visit. In point of fact the blame is less theirs than that of the nurse, who should deny access to the sick-room to all and sundry until the doctor has expressly sanctioned visitors.

SIDE, PAIN IN THE

See STITCH.

SINAPISMS

(Greek, **sinapi,** "mustard").

As mustard is frequently adulterated and its action in consequence impeded, we should endeavour to obtain only that whose quality is undoubted, and, to attain this object, it had better be procured from the chemist. The goodness of the mustard may be judged of roughly by placing a little upon the tongue and perceiving the nip imparted to it. The ordinary mustard poultice is made by sprinkling the surface of a linseed meal, or other poultice, with mustard and covering the surface with muslin to retain the mustard in place. Should a poultice of mustard alone be prepared, it ought to be made with tepid water, as this develops the active principle of the mustard best. It should then be spread upon a piece of rag and applied to the part. The length of time which a sinapism should be kept on varies, some skins being much more sensitive to its action than others. In the case of children and those adults who are delicate and sensitive, a period of ten minutes will generally suffice for its application; in others it may be kept on for a quarter or half an hour. In those who are insensible, care must be taken not to allow the sinapism to remain on longer than this, as ulceration or gangrene may result. Instead of the ordinary sinapism, mustard leaves are useful where a slighter degree of counter-irritation is desired. They are exceedingly convenient and can be cut to any shape or size that may be required. The handiest counter-irritant of all, however, is capsicum vaseline which, being done up in sanitary tubes, may be applied at a moment's notice. Its use is indicated by pains and colds in the chest, throat and lungs, chilblains, cramp in the stomach, headache, toothache, and all rheumatic, neuralgic and gouty disorders.—*See* also MUSTARD PLASTER.

SKELETON, THE

(Greek, **skello,** "I make dry"). The word skeleton signifies literally the dry or hard parts of the body. When used in a limited sense, it is applied merely to the bones; but when used in a wider and more philosophic sense, it includes not only the bones but the cartilage and fibrous membranes which complete the framework of the body. The skeleton of a full-grown human being consists of two hundred distinct bones, exclusive of the little bones in the internal ear. They are thus distributed :—

The Spine	26	bones
Skull	8	"
Face	14	"
Ribs and breast-bone .	26	"
Upper extremities . .	64	"
Lower extremities . .	62	"

The actual number of distinct bones varies at different periods of life, many bones which are separate in youth becoming joined together in old age.

SKELETON, ERECTNESS OF

The erect position of the human skeleton is one of the most noticeable of the bodily characteristics of man as compared with the lower animals. He is, indeed, the only living creature that can walk or stand erect, i.e. with the axis of the spine vertical; with the hip and knee-joints capable of being fully extended, so that the leg is brought into line with the thigh; with the foot so planted on the ground that it rests on the heel behind and on the roots of the toes in front; with the upper limbs so arranged as to act, not as instruments of progression, but of prehension; and with the head so balanced on the top of the spine that the face and eyes look directly to the front. This erect position is in a great measure due to combined muscular action. The natural architecture of the skeleton adjusts its own centre of gravity. All those joints which transmit weight to the ground lie in one vertical plane, and such a line would be described as passing from the top of the head, through the joints between the head and first bone of the spine, through that between the last bone of the vertebræ and the sacrum, and through those between the sacrum and haunch bone, the hip, knee and ankle. The spine, consisting of a great number of bones, peculiarly articulated together by interposed elastic cushions, increases in size from above downwards and, moreover, possesses several well-marked curves. The object of these cushions and curves is to receive the shock of sudden blows and falls and to disperse their effects; again, the curves are arranged alternately, so as to distribute the weight with greater advantage to the centre of gravity of the body, which passes through all the curves and falls on the centre of the base of the column. It will be observed that all the bones of the limbs are slightly curved, thus assisting in the individual and mutual transmission of shock. The pelvis (sacrum, coccyx and haunch bones) is very broad and strong in man and the plane of its arch is in such a direction that the weight is transmitted vertically from the sacrum to the heads of the thigh-bones. The thigh-bone, being curved inwards, allows of the weight of the body being brought under the pelvis and transmitted to the broad, expanded ends of the bones forming the knee-joint. The foot, in its turn, consists of an arch, or rather double arch, which receives the transmitted weight at its crown directly through the leg bones. Thus it will be seen that the upper limbs take no part in the maintenance of the natural upright position.

SKIN, BLOOD SUPPLY OF THE

See Blood, Supply of, to Skin.

SKIN, COLOUR OF THE

The colour of the skin depends upon the outer or epidermal layer. If it were entirely removed, the surface would be of an almost blood-red colour, owing to the abundant blood-vessels found everywhere in the corium. Where the epidermis is thickest, as upon the palms and soles, the red is almost entirely lost, and the skin has a yellowish grey tint ; where it is thinner, it is of the well-known pinkish flesh colour ; and when a part becomes unusually flushed with blood, as in inflammation and also in blushing, the red colour predominates, the filled blood-vessels showing through the epidermis.

SKIN, DIET IN DISEASES OF THE

Diet is of varying importance in the different affections of the skin and in purely local ones, such as ring-worm, is of no consequence. But all diseases indicate debility, and even those depending on local causes may demand constitutional, dietetic and hygienic treatment. In some diseases, as, for instance, nettle-rash, diet is all-important, for the very article that produced it may be indulged in and render the disease incurable. Certain chronic skin diseases originate in or are fostered by errors of diet. The fermented liquors, ale, beer, wine and cider are very frequent causes of skin diseases and of their continuance and must be avoided by those subject to them. A return to their use is frequently followed by a relapse of the disease. A healthy appetite and common sense are the best guide in the matter of diet, but the refinements of civilization add greatly to the temptation of over-eating and wrong eating. The infant, when over-fed by the indulgence of the mother whenever it cries, rejects its milk by a natural process and is saved much sickness thereby. The Chinese gourmand is said to take an emetic that he may again gratify the taste of eating and the Roman epicure frequently relieved his stomach by artificial production of retching in order to go on eating. The refinement of to-day rejects these disgusting devices, but takes the dinner pill, or the aperient mineral water, to carry off that which should never have entered the stomach. The result of this over-eating is that the organs of digestion are impaired ; the mass of partly digested food is hurried along ; the blood absorbs the products of imperfect digestion ; the organs cannot get rid of the waste matter already circulating in it. As a consequence, we have sick-headaches, biliousness and skin diseases. Medicine is taken, the organs are whipped into action, the surplus is carried off ; there is some relief ; the organs rest from their extra work ; the full diet is maintained ; and the process is repeated again and again. Salted meats and salted fish are popularly supposed to act prejudicially in skin diseases and rightly so. They should be avoided in these affections, as also pickles, olives, rich salads and the like : likewise stimulating sauces, pepper, etc. There is, however, no objection to acids in most skin affections and a certain amount of vinegar is often beneficial. The only exception to this is, perhaps, in the case of nettle-rash. A very great error is often made in the amount of liquid consumed during eating. This is especially true of large amounts of tea, which has repeatedly provoked skin diseases. There is no objection generally to the use of a small amount of coffee once daily and tea once daily. But many persons consume very much water with their meals. This should be avoided and as little as possible drunk. Nor should a large amount, as a goblet full, be taken directly after eating ; for the effect is the same, namely, to chill the stomach and arrest digestion. Water should be avoided as largely as possible until at least one hour after eating. Sometimes a cup of very hot water taken a quarter to half an hour before meals will take away the craving for water and greatly benefit any existing indigestion. Rapid eating and imperfect chewing are very fertile causes of trouble and should be attended to. The process of digestion begins in the mouth and unless the food is properly chewed and mixed with saliva (which latter produces certain digestive changes in it), the other organs cannot do their work properly. Women who have eruptions in the face are apt to adopt too low a diet, under the notion that it is cooling and will, therefore, relieve the heat and redness of the skin : whereas the disease itself may depend on debility and may require ample nourishment for its removal. There are other cases in which the eruption is not red and the patient, imagining that it depends on poverty of blood, may have indulged indiscreetly and perhaps injuriously in a rich diet. The pulse is sometimes an excellent guide in these cases. But, as a general rule, severe cases of scaly, papular and vesicular disease (such as lepra, lichen and eczema) require a low diet and cooling regimen ; while pustular, erythematous and bulbous disorders ordinarily require a full diet. But there are exceptions and these can only be diagnosed by the symptoms which indicate the state of the system.

SKIN, DISEASES OF THE

It will be useful to give a general idea of the way in which the skin becomes diseased and a sketch of the more prominent affections and their means of recognition and prevention as far as possible, together with home remedies and measures ; for their actual treatment must always be entrusted to the doctor and sometimes to a specialist. First may be mentioned some of the popular ideas in regard to these affections, with criticisms upon them. Diseases of the skin are frequently, if not generally, looked upon as loathsome ; and many fear to touch them lest they should contract the disease. In regard to this, it may be stated that there are only two or three which are contagious and that not one case in fifty could give the disease to another person. They are also regarded as indicative of something evil, of which the owner should be greatly ashamed ; and any eruption on the skin always subjects the bearer to a certain amount of suspicion that something was wrong on the part either of the sufferer or his ancestors. In answer to this, we may say that the skin is subject to many diseases of whose origin the patient and his progenitors are quite as innocent as is the sufferer from common cold, pneumonia, or fracture. A very small portion of the eruptions has any connexion whatever with syphilis. Again, many suppose that cutaneous disease is an outward expression of some poison which thus seeks exit from the system ; and that if it is only allowed to work itself off through some eruption, all will be well. It is needless to do more than to deny all such crude dogmas and to assert plainly that there is no scientific ground whatever for such assumptions. There is no more mystery in diseases of the skin than in those of any other organ. As a variety of this form of popular thought, we have also the expression of "bad blood" as a cause of skin diseases, and many complain that their "blood is in a dreadful state," adducing as a proof the eruption on the skin. Now, nothing or next to nothing, is definitely known in regard to the condition of the blood in disease, beyond a comparatively few well-established facts ; chemical and microscopical study fail to show that there is "bad blood" in any of the diseases of the skin. It is, however, true that imperfect digestion has much to do with some skin diseases and that internal remedies are necessary in very many of them arising from constitutional conditions ; but it is equally true that certain other skin diseases are local in origin and have nothing to do with the blood. In consequence of the prevailing idea that any disease of the skin must be the result of some internal ferment, the external manifestation of "bad blood" seeking to gain exit, the dangerous opinion is very prevalent that it is not safe to cure eruptions on the skin, lest the disease should fly to some other part of the system ; one hears continually the fear of the disease being "driven in," or "striking in." Now, this fear rests on no grounds whatever, either scientific or practical, as may be readily demonstrated. Authorities are agreed on this matter and the strongest confirmation of it is found in Vienna, where the treatment of skin diseases is almost entirely by means of local remedies ; and those who know most about it insist positively that no harm has ever come, within their experience, from the cure of cutaneous diseases. As examples of the varieties of diseases of the skin, certain ones are caused by the growth of vegetable parasites, like a mould, on and in the skin, and others are due to the presence of animal parasites, as itch or scabies. Then there is a group whose seat is in the glands of the skin ; acne, or the pimples which occur on the face of young people, being located in the sebaceous glands ; while certain disorders of the sweat glands are also recognized. Next we have the class called "neurotic affections," because they are due to a nervous cause, such as shingles (or herpes zoster), pruritus, etc. The exanthemata embrace a number of contagious, eruptive, febrile diseases, as measles, scarlet fever, small-pox, etc. We have also a large group of diseases which have so much inflammatory element that they are called exudative or inflammatory affections, the most prominent of these being eczema, other members of the class being erythema, urticaria (or "nettle-rash"), boils, etc. In this class are grouped thirty-one distinct diseases. Another group is formed by a few diseases which are characterized by hæmorrhage into the skin, as purpura and scurvy. Then there are others known as hypertrophic affections, because there is hypertrophy, or increase of some of the elements of the skin. Such are ichthyosis (or fish-skin disease), warts, elephant leg and several others. Another class is composed of trophic affections, where there is atrophy, or loss of some of the elements, such as alopecia (or baldness). Lastly, we have a variety of diseases caused by a new formation, or new growth, in the skin, under which head come lupus, cancer, syphilis, leprosy, etc.

SKIN, DIVISIONS OF THE

The skin may be roughly divided into two general portions—the deeper, called the corium, cutis vera, true skin, or derma ; and the outer, cuticle, scarfskin, or epidermis. For a description of each of these, *see* CORIUM and EPIDERMIS.

SKIN, FUNCTIONS OF

The harm that is done to the general health of ill-chosen clothing materials is easily understood when we have some idea of the structure and functions of the skin. The skin is by no means a mere wrapping for the body—it is an important organ of excretion, that is an organ for removing from the system certain waste products which if they were allowed to remain in the body would inevitably lead to disaster. The skin over every part of the body is provided with sweat glands which remove from the blood a considerable volume of impurities daily. The sweat glands are placed very closely together, so that on the palms of the hands they are about 2,800 to the square inch. How serious are the consequences of interfering with the working capacity of the skin may be gathered from the results of extensive burns in which a considerable quantity of skin is destroyed. It has also been found that the varnishing of the skin of an animal soon causes death.

SKIN, HYGIENE IN DISEASES OF THE

Exercise, rest, sleep, the care of the skin, as in bathing, the air we breathe, the sleeping apartment, the dryness of the living-room, sunlight, etc., are all points which may play more or less important parts in the production or continuance of disease of the skin. Sedentary habits are undoubtedly the cause of many of these affections and, unless they can be changed, permanent cure cannot be effected in many diseases. Walking affords sufficient exercise if taken briskly, but the saunter is hardly capable of quickening the circulation enough to cause the proper blood changes to take place. The distance walked must vary, of course, with the patient ; but from two to four miles daily is a small rather than large amount for the healthy person to average. Riding on horseback often assists greatly in the cure of skin disease ; carriage-riding, even if for long distances, does not give sufficient active exercise. Rowing, boating, etc., should all be encouraged in those with chronic skin disease, for a large proportion are associated with a sluggish state of the system. Those diseases of the skin the cure of which is found most tedious and most difficult generally occur in the sedentary class. Shoe-makers, tailors, weavers, sempstresses and artizans who work many hours in close apartments often suffer severely, not only from impaired health but also from various cutaneous maladies arising from breathing impure air, from suspended perspiration and disuse of the muscles of locomotion. The bowels are generally constipated and in women menstruation is scanty and painful ; while both sexes complain of headache, dyspepsia, nervousness and debility. Yet the remedy is much in their own hands. Most of them reside either in the country, or within easy walking distance of a public park. Early in the morning, in the summer especially, for one or two hours before the day's work begins, the air of these parks is pure and salubrious and sweet with the exhalations of leaves and flowers. A walk of three or four miles before breakfast, when once it becomes a habit, gives tone and strength and spirits for the sedentary toil of the day. Overwork and too little sleep are fruitful causes of many of the skin diseases, with nervous elements, and should be regulated. Neglect of bathing and friction to the skin may produce disease ; although over-stimulation is also quite as bad in some cases. Some skin diseases are certainly much worse in winter, as chronic eczema and pruritus, while others are more apt to give annoyance in summer, as urticaria, acute eczema, prickly heat, etc. As a rule, the more acute eruptions are worse at the sea-shore and the greater number are benefited by mountain air. Acne is almost invariably made much worse by sea air and bathing ; old eczema patients are often much benefited at the sea-shore ; but if there is any raw surface, it is aggravated by sea-bathing. Psoriasis is benefited by the sea and warm sea baths may even be taken in winter with advantage in this complaint. Popular opinion favours greatly mineral springs in cases of diseases of the skin and they are resorted to indiscriminately by those suffering from them. There can be no doubt of their efficacy in certain diseases, but they are not to be used rashly without a definite knowledge of what is to be accomplished ; waters which may be beneficial in some eruptions are harmful or inefficacious in others. Special advice should be sought from doctors familiar with the subject ; but to go to any health-resort unintelligently is like visiting a chemist's shop, because sick, without a definite prescription. Foul air, in the sleeping-room, parlour, or office, is a matter which should never be neglected either in disease of the skin or of any other organ, or in health, for by lowering the vitality it invites disease. Dampness of apartments may in the same way give trouble ; and also too great dryness—as by furnace-heat without evaporating water—can dry the skin too much and cause it to become diseased. Sunlight is as necessary to health and life in the human being as it is in plants and flowers. All know that these will not flourish on the north side of a house, or if deprived of the actual rays of the sun, however light their surroundings may be. Just so, as an element of health of the skin and other organs, sunshine is essential to man and the avoidance of it, wilfully or carelessly, is a cause of the occurrence and obstinacy of disease. In conclusion, it may be said that in chronic skin diseases the whole system is deranged and to accomplish their cure and prevent their return, it is frequently necessary to alter the conditions of the system. To accomplish this, it is not enough to apply a wash or a salve, or take a few drops of this or that remedy, but by a combination of all the means known to science, by diet, hygiene and medicine, the disordered organ and system must be restored to the state of health. And the application of the same rules, together with self-restraint, will serve to prevent a recurrence of the skin disease.

SKIN, ITCHING OF THE

See PRURITUS.

SKIN, MUSCLES OF THE

See MUSCLES OF THE SKIN.

SKIN, NERVES OF THE

See NERVES OF THE SKIN.

SKIN, SUSCEPTIBILITY OF THE

"Although everywhere sensitive," says George Henry Lewes, "the skin is not everywhere equally susceptible to the same kind of impressions. The face is more sensitive than the hand to temperature ; the sole of the foot is more sensitive than the back to tickling ; the tips of the fingers are more sensitive than the palm of the hand to pain and less to tickling. In cold weather we see men beating their hands together or clapping their sides to stir a little warmth ; but they never think of slapping their faces with this energy. The schoolboy has often to hold out his palm for a stroke with the cane which would be intolerable on the back of his hand."

SKULL, THE

The cavity of the skull contains the brain within its hard, unyielding walls. The skull is not one continuous bone, but is composed of eight distinct parts, united by ragged edges, somewhat like saw-teeth, called sutures. These bones are also composed of two plates or tablets, united by a spongy, porous portion of bone. The outside plate is tough and fibrous ; the inside one hard and glassy—hence called the vitreous plate. The skull contains the brain, which is thus effectually protected. The outside plate, which is tough and yielding, and the spongy portion between the two serve to diminish the vibrations and shocks in cases of falls and blows. The skull being composed of several bones, is also calculated to prevent fractures from extending as far as they otherwise would if it were one continuous bone. The skull of a woman is smaller and lighter than that of a man. The internal capacity is about 10 per cent. less than that of the male.

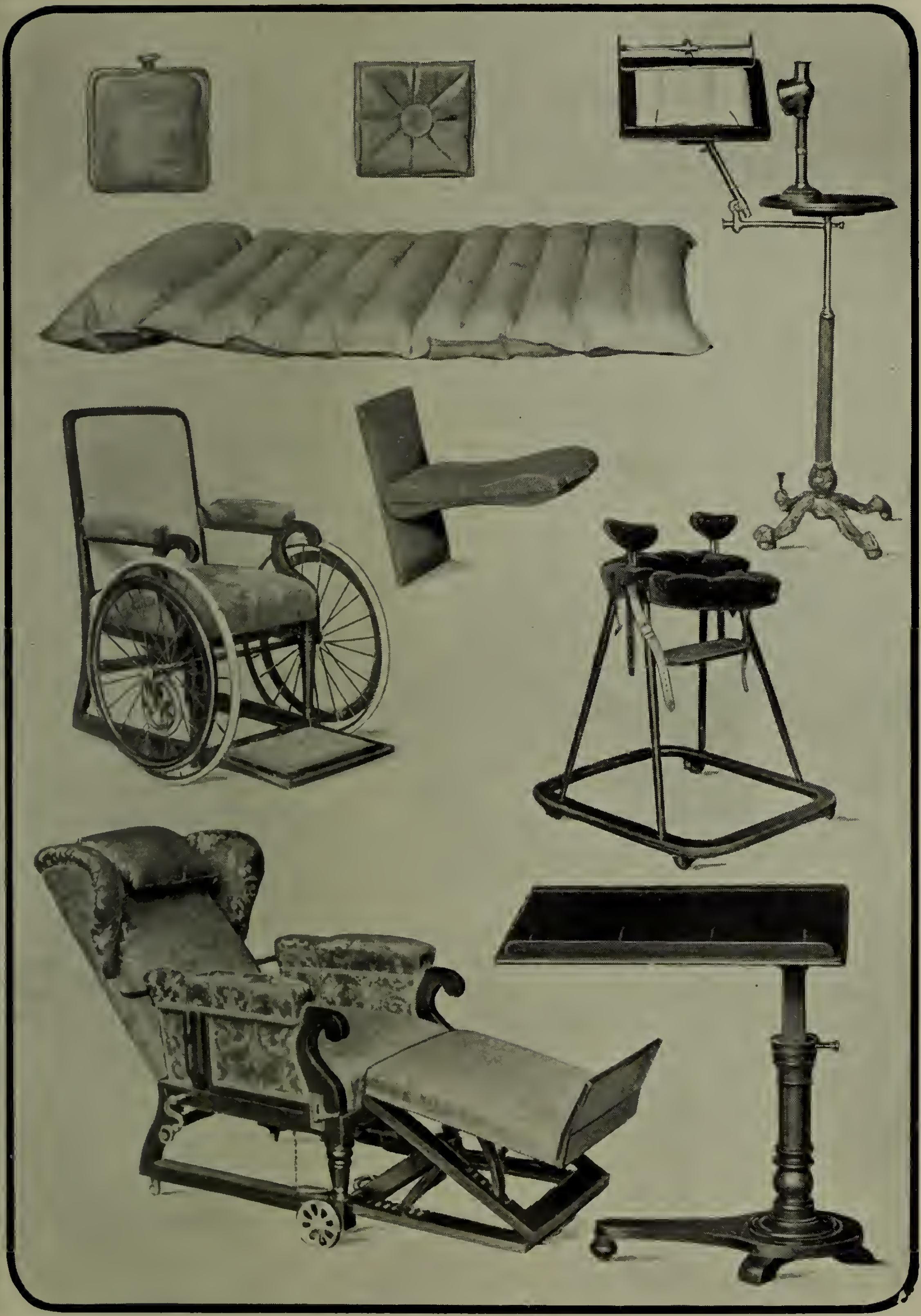
SKULL, FRACTURE OF THE

With reference to fracture of the skull, the different bones of the head may be depressed as well as fractured and in young subjects are often depressed without fracture. In most cases of fracture, indeed, one portion of the bone is pressed down below the level of the other and this unevenness of surface under the scalp often renders the fracture sufficiently apparent, where there is no wound in the scalp. But, when the scalp is much wounded, the fracture, if it exist, may be detected both by the eye and the finger. But whether such be the case or not, if any one should happen to see a person who, after a blow or fall upon the head, remains insensible, he may rest satisfied that the case is of too serious a nature to remain under private management.

SLEEP

What is sleep ? We do not know. "We can only say," remarks George Henry Lewes, "that it is a condition belonging to almost every animal organism (at any rate, to every organism possessing a high nervous development), which seems naturally brought about by the activities of that organism and which, in some unexplained manner, helps to reinstate exhausted energy of brain and muscle." The best-supported view of the process of sleep, physiologically considered, is that it arises from a depletion or flowing away of

INVALID FURNITURE.



Hot Water Pillow; Air Cushion; Hot Water Bed; Adjustable Reading Easel; Self-Propelling Chair; Gout Stool; Go-Cart or Walking Horse; Recumbent Chair; Bed Table.

blood from the brain. This view was sustained by the observation of the brain of a beggar in Paris, whose skull was fractured and had to be covered with a silver plate ; for it was observed that when the man fell asleep, his brain sank and only regained its natural size and form when he awoke. The state which we name sleep and which passes by insensible gradations from waking to dozing, from dozing to dreaming sleep, and from that, perhaps, even to dreamless sleep, is determined by the condition of our organs. It cannot be produced by any effort of the will unless other predisposing causes co-operate. Every one knows the wretchedness of a sleepless night. On the other hand, no effort of the will can prevent sleep under certain conditions of the exhausted organism. Neither pain nor fear of death will suffice. Damiens slept on the rack, exhausted by torture ; and many a victim to chronic pains knows the temporary refuge of sleep.

SLEEP, BRAIN AND

See BRAIN AND SLEEP

SLEEP, DEFICIENCY OF

The effects of habitual deficiency of sleep are a sense of wretchedness and prostration, frequently accompanied with great restlessness. These symptoms may be due either to an emotional excitement which keeps slumber from the eyelids, or to a voluntary effort to goad the intellect into continuous activity. This latter practice is very common in the lives of students and business men, who allow themselves less than the quantity of repose actually needed by the system. Headache, fulness, heat, throbbing and various other unpleasant sensations about the head give warning that the brain is being overtasked and, should this warning pass unheeded, sleep, which at first it was difficult to resist, becomes even more difficult to obtain and a state of general restlessness and feverish excitement is induced. If, in spite of this, the effort be continued, serious consequences in the form of brain fever, apoplexy, insanity and loss of mental power from softening of the brain, partial or complete, are almost sure to be set up. Though this baneful custom may be sustained by certain persons much longer than by others, it is a great mistake to suppose that it is not to them also very injurious. They think they have the "constitution of a horse" and can endure anything and frequently prolong the exertion till sudden and complete prostration proves what fearful, often irreparable, injury they have done. Habit may modify natural requirements to some extent, but it does not follow that habit thus acquired is a boon.

SLEEP FOR CHILDREN

During infancy and childhood the disposition to sleep is great, the first few weeks of the infant's life being for the most part one long sleep, the little one only awaking when the calls of hunger compel it to do so and again dropping off so soon as hunger has been appeased. Gradually, however, the periods of wakefulness lengthen, and the child will be found at the expiry of a month or so looking about it and beginning to take notice of things. Now is the time to begin teaching the infant habits of regularity in sleep. For the first month at least the child should sleep with its mother. This is necessary because the power of generating heat is very feeble in young infants and to place them thus early in the cot would be to expose them to a trial which might easily prove very dangerous. For the first month, therefore, the child should sleep with its mother, in whose bosom alone it can find that warmth which is so necessary for it at this time. Care must, however, be taken that the child be not overlaid, as many deaths have been caused through carelessness in this respect. When the first month is over, the infant should then be placed in a cot, which ought to occupy such a position in the room as will exempt the child from all draughts. Attention must also be paid to the covering of the child, which should be sufficiently warm to maintain it in a moderate degree of heat. By carelessness in regard to this, many children are unduly heated, irritable and restless and their sleep in consequence is disturbed. But while attention is paid to see that the child is not overheated, care must also be taken lest the opposite extreme be run into. The head should be kept cool. No covering should be placed upon it in the form of nightcap or shawl and the pillow ought to be one of horse-hair. The amount of bedclothes depends on the nature of the mattress. Thus, if it sleep upon a feather-bed, this will necessitate, owing to its warmth, less clothing being put on above ; whereas if the child sleep upon a hair mattress, and have a sheet next the skin, this being colder will necessitate a warmer covering above. For the first two years or so the child will generally sleep three times in the twenty-four hours, and the two naps during the day must be so timed as not to interfere with the dieting of the infant. Regularity in this respect should also be observed from the first ; thus the noon nap should be taken from about eleven till one o'clock and the child should be again encouraged to sleep for about an hour after the principal meal of the day. Young infants cannot pass their time more profitably than in sleeping at such periods. After the first two years have passed, the afternoon nap may be discontinued, but that at midday should not be hurriedly broken off. It may be advantageously continued till the fifth or sixth year. Till about the tenth year a boy will generally sleep a round of the clock and the period of his slumber should not be cut short. After this the hours devoted to sleep may be somewhat curtailed, but this ought always to be done cautiously and the growing boy should be encouraged to sleep more than is perhaps absolutely necessary rather than have his hours of sleep unduly shortened. As the period of puberty approaches, the necessity for so much sleep diminishes and the duration may be somewhat shortened, about eight hours being allowed for this purpose. From this time onwards there can be no reduction of the hours of sleep without risk of the health becoming impaired. A child should not be allowed to sleep with lights burning about it. A babe will go to rest immediately after feeding and the digestion of its simple nutriment will not be deranged in consequence, but children, when they have begun to live on solid food, should not sleep until an hour or so after their last meal. Sleeplessness is always an indication of derangement of function or organic disease. Unnatural excitement often is the cause of an indisposition to sleep in children otherwise healthy. If kept up late at night, exposed to the glare and heat of the gas or other artificial lights, stimulated by the presence and vivacity of a number of people, their excited minds and irritated nerves keep their bodies, however fatigued and in need of repose, in such restlessness that sleep is impossible. A healthy child requires no other inducement to sleep than its own natural instinct. The motion of the cradle or rocking-chair owes its power of causing sleep to its power of causing stupor and the application of it, however slight, to the delicate nervous system of the infant should be avoided as dangerous. No opiates of any kind, whether authorized by the formularies of the regular doctor, or smuggled into use under the disguises of the nostrum-vendor should ever be given to children, young or old. Laudanum and paregoric, soothing mixtures and sleeping cordials, are very dangerous remedies which always injure and often kill, when administered to a sleepless but not otherwise unhealthy child. Children should, if possible, never be sent to bed except in a cheerful mood. A fit of anger or fretfulness at bed-time will often disturb the repose of the whole night. Most children have a horror of darkness, which seems almost unnatural to the vague imaginations of the young. This cannot be removed by a forced subjection and should never be attempted. When it exists, the calming presence of an elder person, or the glimmer of a light through the partly opened door of an adjoining room, will generally suffice to conjure away all imaginary terrors and this slight indulgence should never be refused. It need hardly be said that every child should be spared the horrors of "Bogie," "The Old 'Un," and the other monstrosities of the nurse's stupid fancy.

SLEEP, LIGHT AND

See LIGHT AND SLEEP.

SLEEP OF PATIENT, OBSERVATION OF

With regard to sleep, the number of hours should be recorded, also which hours. Did he sleep during the early part of the night and remain wakeful afterwards, or was he restless and wakeful throughout the first part of the night and did he then fall into a troubled doze and awake unrefreshed in the morning? Careful attention to ascertain these facts is very important, as the remedy to be applied in the two cases is different. In the former, on applying external warmth, or giving food or stimulants, you will frequently put the patient under those conditions which shall enable him to obtain undisturbed sleep during the remainder of the night; while in the latter, by administering some sedative, you obtain a like result during the earlier hours. The appearance of the patient on awaking from sleep should also be observed and the kind of sleep obtained, whether quiet and peaceful, or disturbed and rambling. By the careful observance of such facts the doctor will be put in possession of much valuable information, which will serve to act as a guide in regard to the line of treatment most likely to act beneficially upon the patient. All facts thus observed by nurses and those in attendance upon the sick and reported to the doctor will be carefully weighed and due importance be attached to each and, taken in conjunction with what he himself has observed, may prove of great service in the management of the case.

SLEEP, POSITION IN

Generally it is better to lie on an

inclined plane, or with the head moderately raised, but not so high as to produce any strain upon the muscles of the neck, for spasmodic or irregular action of these muscles appears to have a singularly disturbing effect upon the brain. All needless pressure upon the spine ought to be avoided and hence it is advisable for wakeful persons to lie upon an elastic mattress, placed upon a feather bed, which equalizes pressure without subjecting the body to excessive warmth. Those in ordinary health should not have a pillow any higher than will keep the head three inches above a horizontal line, or above the level of the body, because this position admits of the easiest and most natural and most equable circulation of the blood and keeps both lungs and heart less pressed upon and less confined. If the head is high, it bends the chin upon the breast and throws the arms inwards, each of these tending to confine the chest. On which side should we go to sleep ? On this subject doctors disagree. "In reclining," says one, "the sleeper should lie upon his left side, a habit of doing which may be easily acquired. In this position the heart, which is movable, remains more readily in its natural place, while, if the body lies on the right, this organ is shifted and, compressing the lungs, interferes with the freedom of breathing." "We should go to sleep," says another physician, "on the right side, for then the food descends through the outlet of the stomach by gravity : otherwise, stomach power is wasted in drawing it up as from the bottom of a well ; after the first sleep, let the body take care of its own position." Probably the right position is a matter of habit. Very delicate persons often appear to be influenced by the direction, as regards the magnetic current, in which they lie ; the most favourable effects being observed when the head is directed to the north and the feet to the south.

SLEEPING DRAUGHTS

Sleep may sometimes be purchased too dearly. Macbeth murdered sleep and a large and, unhappily, increasing number of well-meaning but misguided persons poison it. While in attacks of illness the use of alcohol, opium, and chloral often proves of the greatest service, their employment in ordinary circumstances as soporifics is hurtful in the highest degree. The sleep produced by such narcotics as opium, chloroform, chlorodyne and the rest of the narcotics or so-called sedatives—let them act as they may "on the nervous system directly" or "through the blood" —is poisoned. Their use gives the person employing them an attack of cerebral congestion, only differing in amount, not in kind, from the condition which naturally issues in death. There is grave reason to fear that the real nature of the operation by which these deleterious drugs, one and all, bring about the unconsciousness that burlesques natural sleep is lost sight of, or wholly misunderstood, by those who have free recourse to poisons on the most frivolous pretences, or on none save the exigency of a morbid habit. *See* DRAUGHTS, MEDICINAL.

SLEEPING SICKNESS

This is a somewhat mysterious disease which decimates the villages of Tropical Africa. It was long supposed to be peculiar to the negro, but it is now certain that the white man can claim no immunity from it. The cause was variously ascribed (in the case of the imported slaves of the West Indies) to home-sickness, manioc poisoning, drugs, intoxicants and other agencies. It was not until 1903, when Castellani found it in the blood and tissues of sufferers from the complaint in Uganda, that it was definitely ascertained to be due to an organism named *Trypanosoma gambiense*, conveyed to the human victim by the tsetse fly, *Glossina palpalis*. The first indications of sleeping sickness are gradually though intermittently increasing lassitude, with headache and feverishness and a tendency to fall asleep at unusual times. "This sleep," says Sir Patrick Manson, the great authority on Tropical Diseases, writing on the subject in *Cassell's Encyclopædia*, "is not of a profound character, nor is it always a pronounced symptom. The word 'lethargy' is perhaps a more correct term for the condition. At first the stricken negro may try to do his work, but he is easily tired and prefers to dawdle over it, or to lie about his hut or bask in the sun. When he walks he shuffles along slowly or even staggers like a man newly aroused from sleep. His face wears a morose and taciturn expression, the upper eyelids half closed, the lower lip drooping and the saliva perhaps dribbling from the corners of his mouth. There may be tremor of the hands and tongue, speech is slow and conversation is not sought for. Although occasionally there is some mental aberration, anything in the nature of insanity is unusual. In the negro there is often intense itching, especially of the skin of the chest; and in the white-skinned European great patches of a peculiar red congestion, often in the form of rings, may show themselves on the skin of the trunk, face and limbs. Sometimes the features and limited areas of the body are slightly puffy and swollen. In both negro and white man the lymphatic glands, especially of the neck, are enlarged and occasionally tender. The condition of the patient may once or oftener undergo temporary improvement, but sooner or later the lethargy deepens into complete indifference or prostration, the body wastes, various nervous symptoms, such as local or general convulsions or paralysis, may set in, bedsores form hyperpyrexia, diarrhœa, dysentery, pneumonia, or other intercurrent diseases may supervene and rapidly carry off the wasted, half-starved wretch." Sleeping sickness is a disease of the nervous and lymphatic systems. Its duration is indefinite, but is supposed to average three months. Negroes, however, maintain that no man is safe until an expiry of seven years from his last visit to an infected district. The disease was for a long time supposed to be incurable, but Sir Patrick Manson believes that the administration of arsenical preparations, mercury, certain dyes and various combinations of these substances may prove permanently beneficial in some cases at least. But for that he thinks the outlook for Tropical Africa would be of the gravest.

SLEEPLESSNESS, COLD FEET AND

See Cold Feet and Sleeplessness.

SLEEPLESSNESS, HOW TO CURE

Thousands suffer from wakefulness who are otherwise in good health. To some of them this becomes a habit and too often a growing one. The great thing, in most cases, to procure sleep, is to obtain absolute rest of mind. To men of active brain this is sometimes singularly difficult and many plans have been proposed to overcome the difficulty. They all consist in this : in attending to something of absolutely no interest, of a dull, monotonous nature. One in imagination watches sheep jumping through a hedge ; another fancies he sees ships sailing out to sea. And many, doubtless, have heard of the midshipman who, when he could not sleep because there were no waves beating against the sides of the ship, got his mother to imitate the familiar sounds by dashing pailfuls of water against his bed-room door. A safe remedy for want of sleep—less original, perhaps, than any of the above, but suited to almost everybody—is nothing more nor less than eating onions. Common raw onions should be taken, but Spanish onions stewed will do. Frank Buckland kindly said : "Everybody knows the taste of onions ; this is due to a peculiar essential oil contained in this valuable and healthy root. The oil has, I am sure, highly soporific powers. In my own case it never fails. If I am much pressed with work and feel I shall not sleep, I eat two or three onions and the effect is magical." Dyspeptics are seldom sound sleepers and in many cases the first thing to be done is to get the digestion in good order. This little fact shows the importance of dealing with every case on its own merits and not by mere routine. Thus, we have known a person take chloral who passed sleepless, or worse than sleepless nights and was troubled with evil dreams and nightmare as soon as his eyes were closed. As a consequence, the dreams and nightmare were worse than ever, but a blue pill and a black draught speedily secured sound and refreshing sleep. Constipation and interference with the functions of the liver are serious enemies to satisfactory repose. To many a due amount of exercise in the open air is absolutely indispensable, if sleep is to be procured ; and it is often observed that a buffeting with the wind causes sleep sooner than any other form of exertion. The diet, too, must be attended to, if sleep is to be refreshing. Here every man must be a law to himself, for what soothes and comforts one man may excite another and prevent sleep. There is, however, one fixed rule, and that is never to go to sleep with an undigested meal in the stomach, if it be at all a heavy one. To this end many do much better by making their chief meal early in the day and only taking a light meal in the evening. Tea and coffee taken late in the day are particularly prejudicial in the interests of sleep. The influence of these, however, differs in different individuals ; in some, tea is more stimulating than coffee ; in others, the reverse is the case. Going to bed at a certain regular hour, be this what it may, is powerfully conducive to sleep ; habit here becomes all-powerful. It is, too, advisable to be done with the work of the day some time before going to bed. If that work has involved physical energy, the rest will often be enough of itself ; if it has been head-work, a change is often best. For many persons there is no preparation for sleep equal to a pipe and a novel ; to others this would be poison. To many a " night-cap" is essential, be it a glass of wine, a tankard of ale, or a tumbler of grog. If indulged in with discretion, there is nothing to be said against the practice, except this : should the individual be so situated as to have to go without his accustomed stimulant, he will most probably pass a sleepless night. The condition of the body exercises a great influence, either good or evil, upon the chances of obtaining sleep. When the feet are cold or damp on going to bed, a refreshing sleep is impossible ; therefore it is a good plan to spend a few minutes before going to bed in drying and heating the feet, with the stockings off. Indians and hunters always slept with their feet towards the camp fire. Suspense is a powerful sleep-preventer. Thus Dr. Carpenter says, " It is a common observation that criminals under sentence of death sleep badly so long as they entertain any hopes of a reprieve ; but when once they are satisfied that their death is inevitable, they usually sleep more soundly and this even on the very last night of their lives." Among the simple and almost hygienic means of promoting sleep, it may be mentioned that, if restlessness seems to be due to congestion and heat about the head, cold water or cold vinegar-and-water sponged over the forehead and temples will help to relieve it, particularly if other parts of the body are kept warm. The bed-chamber should be well ventilated by having the window open at the top and the temperature ought to be kept about 20 degrees, or even (for robust persons) 25 degrees below that of ordinary sitting-rooms. An exception, however, is to be noted in regard to all children and to invalids, especially if suffering from diseases of the lungs and throat.

SLING

A sling is only a large square piece of cotton or a large handkerchief tied round the neck by the corners to support the arm. It should be brought above the elbow-joint and extend to the wrist ; or, if the hand is to be supported, to the tips of the fingers.

SMALLPOX AFTER VACCINATION

Smallpox occurring in persons partially protected by a long previous vaccination is generally rendered much milder and is called varioloid, or modified smallpox. This modification is seldom fatal and does not often leave unsightly scars. It is, however, capable of giving genuine smallpox to unprotected persons.

SMALLPOX, CONTAGION OF

Contagion is often capricious. Occasionally, in a family of children, one will be very ill with scarlet fever and the rest, although exposed to the seeds of the disease, will escape without being affected ; at other times, all the members of a household, except those protected by previous attack, will take the malady in spite of ordinary precautions to seclude the affected child from his brothers or sisters. This variety of behaviour is, no doubt, due to some constitutional peculiarity, either temporary or permanent, and has its complete analogy among the larger plants, certain weeds or flowers growing with great luxuriance in particular places and soils, but utterly failing to establish themselves in other and apparently similar localities. The contagion of smallpox is probably the most virulent of any that we have ordinarily to deal with and, but for the discovery of vaccination by Edward Jenner, would perhaps have continued to prevail as a terrible scourge of our race. People of the present day, who complain of the temporary inconvenience and almost infinitesimal danger of vaccination, can only do so through ignorance of the suffering, deformity and mortality which attended smallpox in former times. It is estimated that in the United Kingdom in the eighteenth century, nearly one-third of the inhabitants, women included, were pitted with smallpox, which caused about ten per cent. of all the deaths taking place every year. The mortality was so great that one out of every four and in some epidemics one out of every three attacked, died. The sure method to avoid the contagion of smallpox is to be vaccinated and revaccinated if the disease happen to be unusually prevalent. Every infant in undoubted health should be vaccinated some time before the age of six months (or sooner if there is smallpox in the neighbourhood) with pure vaccine matter. The operation should be repeated till it "takes" perfectly or the doctor is satisfied that the baby will not "take" after the third vaccination. Revaccination is necessary because, although in a majority of instances a single perfect vaccination protects throughout life, in a minority of cases this security becomes less and less with advancing years and the only sure plan of protection, therefore, is to revaccinate. The contagion of smallpox is extremely active. It may be conveyed by the breath of a person affected with it before any eruption appears and has been caught from a dead body twelve days after decease. It may be transmitted for long distances in clothing, bedding, litters, etc., unless great care is taken to ventilate and disinfect the same. Smallpox is one of the diseases that are compulsorily notifiable by the doctor immediately a case has come under his notice. Stringent laws are properly enforced against persons who endanger public health by running the risk of disseminating the poison of smallpox.

SMALLPOX, DANGERS OF

Watch all the symptoms carefully and report promptly any light-headedness, sudden exhaustion, or difficulty in swallowing ; notice the manner of breathing and sound of the voice. Pleurisy and laryngitis are among the complications which may occur. If, during the decline of the eruption and while the secondary fever is in progress there is a clammy sweat, or sudden sinking, or tremor, administer half an ounce of brandy, without waiting for orders. If the pustules sink, or change to a purple colour, give the brandy in hot water, or some hot spiced drink, freely. In either case, let the doctor know at once of the symptoms. In general, follow all directions exactly and repcrt any changes carefully.

SMALLPOX, DISINFECTING AND ISOLATING

The safest and wisest precaution is to remove the patient to a smallpox hospital. Probably the sanitary authority will require this in the public interest if the Medical Officer of Health report accordingly. In the cases where treatment at home is allowed, the carpet of the room should be taken up the first day that the disease is recognized. The mattresses have already become infected and must not be changed. The utmost possible isolation must be observed. When things are required—food, medicine, clothing, etc.,—the request for them should be written on a slate, which should be hung where it can be read without taking it down. Whatever is ordered should be brought to some place agreed upon and left for the nurse to carry to the room. All bed and body clothing must be of the oldest kind, so that it may be destroyed when done with. It must be borne in mind that there is no disease more contagious than smallpox ; it has been conveyed by infected articles carelessly put away and opened years afterwards.

SMALLPOX, MODIFIED

What has been termed modified smallpox is an eruptive disease, which frequently occurs during the prevalence of smallpox and has been observed to occur in persons who have had smallpox, natural or inoculated, as well as in those who have been vaccinated.

SMALLPOX, MODIFIED, SYMPTOMS OF

The disease is sometimes ushered in with as severe attack of fever as genuine smallpox, but frequently the symptoms are so mild as scarcely to attract attention. It is contagious. After three or four days the eruption appears and runs its course more rapidly than the graver disease ; the constitutional symptoms subside when the eruption appears ; on the fourth or fifth day the pocks or vesicles, which contain some a thin, pellucid, and others a straw-coloured fluid, more or less opaque, begin to shrivel up and in a few days more the scabs fall off, there having been no inflammatory blush round the basis of the pock and no secondary fever.

SMALLPOX, MODIFIED, TREATMENT OF

The treatment, if any be required, will be to give a dose or two of salts during the fever, to adopt a light diet and to keep the patient cool and quiet.

SMALLPOX, SYMPTOMS OF

Smallpox generally begins with a chill, followed by quick pulse and a temperature of 104° F. to 106° F. The distinctive symptom, however, added to these, is severe pain in the back and pit of the stomach, which increases on pressure. These troubles may abate for a while, but they gradually increase and are at their height on the third day, or twelve days after exposure to the contagion. The eruption begins about this time as small pimples, spreading from the face to the neck, breast, back and then to the limbs and extremities. The pain passes off when the eruption is developed and the patient feels pretty well ; but the discomfort will increase again as suppuration begins and the secondary fever, sometimes announced by a chill, comes on. The temperature rises to 105° or 106° F.

SMALLPOX, TREATMENT OF

The fever and the eruption go hand in hand and although the patient may feel relief on the appearance of the pimples, he is to be treated as a very sick person throughout the whole of the disease. Keep the room dark on account of the eyes, which suffer, and ventilate it fully with open windows. Let its temperature be 60° F. to 65° F. Let the bed-covering be sufficiently warm, but not heavy. Give broth, gruel, milk, etc., as food, and cold water or lemonade to drink. If cold compresses are ordered, re-wet them by pouring fresh water over the cloths frequently. The eruption has to take its course, but various ways for preventing scars are prescribed, such as keeping the face covered with oil, or, better than this, having strips of thin linen spread with simple cerate and fitted carefully over the face. Whatever applications are ordered, they are to be faithfully used and the patient is to be prevented from scratching the surface, even in his sleep. To accomplish this, it will generally be necessary to tie the hands up in soft cloths, so that at least the nails may be kept from the face. When there is delirium or unbearable irritation, the only thing to do is to use a shirt with very long sleeves, which you tie together at the wrist. Vaccination performed within four days after exposure to the poison of smallpox may be expected to avert infection. A patient is not free from infection till every scab has come off naturally and all who have been exposed to the risks of infection should be kept in quarantine for three weeks.

SNAKES, BITES OF

In the British Isles there is but one snake whose bite is at all poisonous and that is the viper, or adder. In warm countries the number of venomous snakes is much larger and the poison they secrete much more active and greater in quantity. The more rapidly the symptoms of poisoning appear after the bite of a snake, the more dangerous it is likely to be. The two fangs of the reptile enter the flesh and produce two minute wounds, from which only one or two drops of blood may at first issue. A smarting severe pain is immediately perceived, the part begins to swell and a puffiness almost to the bursting of the skin spreads in a short time all over the limb. There are fever, often with delirium, small pulse, pain in the region of the heart and convulsions. These symptoms are attended with a feeling of anxiety and lassitude; laborious respiration, thirst, nausea, vomiting and syncope. Death from the bite of a viper has been known to occur in thirty-six hours. If the person survive the first effects, the wounded part may become livid and gangrenous and he may sink under the fever set up. According to Fontaine, out of more than sixty cases of viper bites, only two were fatal and in one of these gangrene began in the wound in three days and the person died in twenty days. In one instance, a woman, aged sixty-four, died in thirty-six hours, after being bitten on the thigh by a viper. Such serious effects from the bite of an English viper are, however, extremely rare ; with the exception of slight local and general irritation, one seldom hears of any ill effects following the bite of a common viper. Not so with the more formidable snakes of other countries. In India and the East, thousands of persons annually lose their lives through the bites of poisonous snakes. The cobra di capello and other smaller venomous serpents are well known and dreaded by the natives. The treatment in the case of a bite by a poisonous snake should first be the application of a ligature between the part bitten and the heart, or of a cupping-glass in order to prevent absorption. The wound should be enlarged and well washed. If absorption has taken place and the limb be swollen, the whole of the skin may be smeared with oil and attention directed to the constitutional symptoms. Brandy and ammonia should be given to prevent depression. Strong acetic acid, which coagulates the poison, may be applied when the person is seen soon after the accident. An excellent remedy for the bite of the viper is to be found in sweet oil or olive oil, taken internally and rubbed well into and about the part that has been bitten, the limb, if possible, being held over a chafing-dish or brought near the fire. There is no known antidote to the poison of the cobra. The serpent-charmers of the East appear to secure themselves from injury by extracting the poison bags under the fangs, or by causing the snake to exhaust itself by biting other animals before handling it.

SOFT PALATE

If the reader will examine the image of his mouth and throat as reflected in a well-illuminated mirror, such as a hand-mirror, which he can move in such a manner as to throw the rays of light upon the various portions he is observing, he will notice a movable curtain, the soft palate, hanging from the back portion of the roof of the mouth, or hard palate. When a deep inspiration is taken through the mouth, it will be noticed that this soft palate is forced backwards until it touches the back wall of the throat, the pharynx; but when the inspiration is taken through the nose, the soft palate moves forwards somewhat, so as to leave a considerable space between it and the pharynx, in order that the air may pass by that route into the larynx and thence through the windpipe into the lungs. This soft palate is composed chiefly of muscles, covered by the mucous membrane which forms the general lining membrane of the mouth and throat. Its lower border is crescentic on each side, the central portion being prolonged into a tapering extremity, the uvula, which, when elongated, is apt to touch the base of the tongue, or the valve (epiglottis) on the top of the larynx, and thus produce a sense of tickling, or other annoyance, which gives frequent rise to "hemming," or to a slight cough, to relieve the disagreeable sensation. The soft palate on each side of the uvula is seen to divide into two folds, the front and narrower one of which reaches downwards to the side of the root of the tongue, while the back and broader one reaches farther down to the side of the throat, or pharynx. Between each pair of folds, a small body, the tonsil, is seen to project slightly. Each tonsil is a mass of glands, very apt to become enlarged in acute and chronic sore throat. Acute inflammation of the tonsil constitutes the prominent feature of the affection known as quinsy.

SOMNAMBULISM

(Latin, **somnus,** "sleep"; **ambulo,** "I walk").

This is a singular condition of the body, in which a person performs many voluntary acts, implying a certain degree of perception of the presence of external objects, but without consciousness while the actions are being performed and without recollection of them when the consciousness returns. This affection, as its name implies, is commonly considered as an imperfect degree of sleep, as it most frequently occurs after sleep, and seems to be but a more active exertion of volition than that which takes place in imperfect sleep, when we move and even talk and support ourselves in various postures. In those cases in which sleep-walking is habitual, the friends should take care either to have the bedroom windows secured or allow the victims the use of a room on the ground floor. There are many instances in which a somnambulist has safely negotiated dangers that would have tried the nerve of the most wakeful, but accidents, sometimes fatal, are not unknown in this state. When a somnambulist is detected in the act of walking, he should not be roughly aroused to consciousness, but gradually awakened.

SORE THROAT, ACUTE

The term acute sore throat is used to designate an inflammatory condition of comparatively short duration, affecting any portion of the structure of the throat.

SORE THROAT, ACUTE, CAUSES OF

The most frequent exciting cause of diseases of the throat appears to be the direct action of cold upon the heated body, especially during active perspiration. Sudden exposures to heat when the body has been chilled are likewise a frequent cause of sore throat. It is therefore necessary to avoid these sudden exposures to either extreme. Another frequent cause of sore throat, to which men are subject more than women, is breathing in an atmosphere laden with tobacco smoke, as in the sitting-rooms of public-houses and the like. This is a more frequent source of trouble than smoking tobacco in a private apartment, although this too is sometimes a cause of sore throat. Another source of sore throat is the use of ice-water. And the worst of it is that many persons insist on the gratification—a very considerable one, no doubt—of swallowing copious draughts of ice-water immediately after eating and drinking what is hot. This frequent alteration of extreme heat and cold eventually injures the delicate structures subjected to it. Another source of sore throat is due to over-straining the muscles in loud talking, protracted reading aloud, singing, screaming, calling to the deaf and so on. In public speakers and singers sore throat is often due to improper methods of breathing and of using the voice and is only to be corrected by judicious elocutionary exercise, or a system of vocal gymnastics. Theatrical performers, on the other hand, who pay much greater attention to the proper use of their vocal organs, rarely suffer from this cause, although they are subject to sore throat from ill-ventilated dressing-rooms, badly-heated stage flies and the like.

SORE THROAT, CHRONIC

Chronic sore throats are sore throats of considerable duration—weeks, months, or, in exceptional cases, even years ; the patient, as a rule, not being confined to the house, unless suffering from some enfeebling malady or much reduced by the sore throat itself. In some cases they are the results of one or more attacks of acute sore throat—in others they are the gradual result of prolonged exposure to irritating dust, chemical products and the like. Then again, they occur without any assignable cause, attracting little attention until they have existed for a long time. Simple catarrhal chronic sore throat is the mildest form of the affection. It affects the mucous or covering membrane of the palate and pharynx and not infrequently of the back part of the tongue also and even the floor of the mouth far back. It is recognized by the bulging forwards of the mucous membrane in irregular ridges. The general health is often unimpaired, though there may be languor and indisposition to exert oneself. It is often merely an indication of disorder of the stomach or some portion of the digestive tract.

SORE THROAT, CHRONIC, SYMPTOMS OF

The symptoms are those of local

discomfort in the throat, with dryness of the parts and a disposition to expectorate the phlegm that accumulates from time to time; but actual cough is not frequent, except to clear the throat on rising in the morning. An unpleasant and disagreeable taste in the mouth is often a marked feature of the complaint.

SORE THROAT, CHRONIC, TREATMENT OF

As the disease is usually associated with diseases of the digestive organs, proper attention to the latter will often cure the sore throat without special treatment. When this does not suffice, or when the disease is not associated with disease of the digestive apparatus, soothing solutions in sprays are indicated—warm, tepid or cold, as may be most grateful to the parts. It usually requires a number of months to get rid of the affection, but the cure is apt to be permanent. When smoking keeps up the sore throat, or prevents its cure, the habit must be abandoned or suspended. To strengthen the throat, gargle every morning thoroughly with a pinch of powdered borax and a pinch of common salt in half a tumbler of water. In winter tepid water may be used if cold cannot be borne by the teeth.

SORE THROAT, CLERGYMAN'S

Improper methods of using the voice lead to certain affections of the throat, the chief one of which is popularly known as clergyman's sore throat, though it is by no means confined to members of the clerical profession. It occurs in all classes of persons who strain the voice or misuse it. It consists in a congestion of the mucous membrane and muscles of the throat, with enlargements of many of the minute glands which secrete the lubricating fluid that keeps the surface of the throat moist and pliable. These enlarged glands are visible in the form of prominent groups of projections, varying from the size of pin-heads to that of small peas or beans, irregularly distributed upon the surface of the mucous membrane. The mouths by which these glands discharge their lubricating material being choked up by swelling, that material becomes pent up in them and unable to escape and thus accumulates in the glands and distends them. Now, the congestion above alluded to which is the first step in the process, is produced in the following manner: The muscles of the throat, which should be more or less at rest during the use of the voice, are put into continuous constrained action in improper methods of speaking, as is evinced by uncomfortable sensations during protracted impassioned speaking, or shortly after it. In the same manner as physical consciousness of the possession of a stomach, or of a tooth, or of a toe is evidence that something is wrong for the time with the stomach, the tooth, or the toe, so physical consciousness of the possession of a throat during speaking, or shortly afterwards, is evidence that something is wrong with the throat. The strain upon the muscles and the sense of uneasiness following are cause and effect, both of which may be avoided by proper use of the organs of voice and speech. In civilized communities, conventional or affected methods of doing things of various kinds are employed by many people instead of natural methods, for various reasons, such as the desire to impress others with a sense of individual importance or originality; and these methods are copied or imitated by others. Hence erroneous and affected methods of speaking become widespread. In public speaking and in singing it is requisite that a supply of breath be taken in rather quickly at certain intervals, determined either by the character of the passage or the nature of the effect to be executed ; this supply should be husbanded by controlling the expiration in such a manner that the breath shall be allowed to escape from the chest as slowly as is conformable with efficient utterance. Inspirations, therefore, have to be taken at irregular intervals, varying with the sense of the passage, phrase, or sentence ; and consequently no special rules can be given applicable to all occasions. All attempts to formulate such rules have been failures. It is proper, however, to take an inspiration at every convenient stage in utterance and to utilize every portion of the expiration following in the production of sound. The voice should begin at the very instant of expiration—at the very moment of impact of air against the vocal bands ; but the expiration should not be prolonged unnecessarily, for that will deprive the sounds of the volume and fulness towards the close of the expiratory effort. Care should be exercised not to take breath too often. This produces a disagreeable effect. Practice is the only criterion in this respect and, to be most effective, should be at first under the supervision of a competent critic or instructor. The prevalence of sore throat among clergymen seems to be due not only to bad production of the voice, but, in fact, to the inequalities of temperature to which they are often subjected in the performance of their duties, with bare heads exposed to draughts from open windows or in the open air. It has been often stated that clergymen who preach extemporaneously, or without manuscripts, are less liable to the complaint ; and this may be so, since the constrained position of reading from a desk interferes with the freedom of respiratory movement so essential to the favourable use of the voice without sensible effort. This complaint occurs very frequently in winebibbers. City life also seems to favour its development.

SORE THROAT, CLERGYMAN'S, SYMPTOMS OF

The earliest intimation of the complaint is usually a sensation of dryness in the throat, with a disposition to expectorate, which may comprise the sum total of symptoms for a period of indefinite duration. If the affection continues, there will be more or less hoarseness, sooner or later, with inability to depend upon the voice for any unusual use of it. There may be some difficulty in swallowing, as the disease progresses, and some degree of impairment of hearing. There is rarely any actual pain in the parts, but rather a sense of discomfort as from the presence of some material which ought not to be there. Headache is apt to occur when the disease involves the top of the pharynx at the base of the skull. Dyspepsia and other disorders of digestion are not uncommon. If the disease progresses—and it often remains at a standstill—the symptoms become aggravated, especially after unusual exertion or exposure. The voice may become so impaired as to interfere with the performance of public duties. Cough is more frequent and the expectoration more viscid and often accompanied by painful sensations deep down in the throat, or at the root of the tongue ; the patient becomes nervous and experiences difficulty in swallowing and breathing ; all of which adds to the mental disturbance that begins to be manifested, lest the disease be associated with disease of the lungs, or be indicative of some incurable malady.

SORE THROAT, CLERGYMAN'S, TREATMENT OF

The treatment of this affection is tedious, but may be almost always satisfactory if properly instituted. Constitutional treatment is required in most instances, in maintaining the functions of the skin, stomach and intestines and other organs, in a healthy state. Tonics are often required. In certain cases what are called nerve-tonics are requisite. Local treatment of the throat is almost always necessary. This consists in applications to the diseased follicles, for the purpose of getting rid of them by absorption if practicable, or by actual destruction, if necessary. This requires careful manipulation at the hands of the doctor. It cannot be done effectually by one's self. In addition to this, the frequent use of spray is likewise of advantage. Rest from vocal effort is often imperative and in many cases indispensable to a cure, especially on the part of those with whom the use of the voice is a means of livelihood. It is chiefly the impracticability of resting the vocal organs that prolongs the treatment of the disease. Improper methods of speaking must also be corrected.

SORE THROAT, COMMON

This is a slight superficial inflammation of the covering or mucous membrane of both surfaces of the palate and uvula and usually of the mucous or covering membrane of the tonsils also, extending, in some cases, to the same covering of the back part of the throat, the pharynx; but the mucous membrane of the mouth remains free. It is most frequent in children and quite young adults.

SORE THROAT, COMMON, SYMPTOMS OF

The parts affected are red in colour, more or less swollen, and secrete an excess of mucus. They are often quite painful on swallowing. Speech is often indistinct, but there is no hoarseness. There is no cough unless the uvula is elongated and tickles the back part of the tongue or the valve (epiglottis) on top of the air-passages. Sometimes a sore throat of this kind, following exposure to wet, is very severe for a day or two and subsides suddenly to give way to an attack of acute rheumatism. This form is known as rheumatic sore throat and probably involves the muscles, or the sheaths of tissue in which the fibres of the muscles are enclosed, rather than being confined to the mucous membrane. In serious cases there is considerable fever and this is severer in children than in adults. In such cases, too, the glands at the angles of the jaw become swollen. It often happens that the sore throat is limited to one side of the body, and then the other side is apt to become affected as the diseased action subsides in the first locality ; and if the patient be imprudently exposed, the second attack is apt to be more intense than the first one. Unless there is grave constitutional disorder, this form of sore throat gets well spontaneously in from five to ten days, according to its severity.

SORE THROAT, COMMON, TREATMENT OF

Very often cases of slight sore throat require no special medical treatment whatever. It is prudent, however, to keep in the house, lying upon a couch or bed, with a thin coverlet over the body to equalize the heat of the surface. This precaution will shorten the duration of the attack considerably and render it less liable to subside into a chronic sore throat, as many neglected cases do. The bowels should be kept relaxed by resort to mild medicine, as castor oil, salts, magnesia, or rhubarb. The free use of mucilaginous drinks, such as barley-water, gum-arabic water and the like, and of small fragments of ice retained in the mouth until melted, if agreeable, as they almost always are, will soothe the pain in the throat. Intense heat of the skin may be allayed by sponging the body with acidulated tepid water, bay-rum and water, or alcohol and water. This, with restriction to a very light and easily digested diet for a day or two, will be all that is required in moderate and ordinary cases. Severe cases will require the advice of the doctor.

SORE THROAT, MEMBRANOUS

This is a comparatively unimportant disease of the throat in which the structures become covered with a membranous deposit and which is often mistaken for diphtheria. The tendency in this disease being to spontaneous recovery and the disease being mistaken for diphtheria, certain remedies are apt to be vaunted in diphtheria, because they happen to be used vigorously in membranous sore throat which would have got well in ordinary circumstances. This affection occurs at all seasons of the year. Some are attacked almost annually. Its most frequent immediate cause is a cold bath, or other exposure to cold, while the body is overheated or in active perspiration. Imperfect drainage and emanations from cesspools and refuse heaps are often the apparent remote cause. During the prevalence of diphtheria, common membranous sore throat is often contracted by persons susceptible to sore throats and from other causes and may then become a starting-point for the severer disease.

SORE THROAT, MEMBRANOUS, SYMPTOMS OF

It usually begins with a chill, followed by fever, which is sometimes quite severe ; then there are two or three days of ordinary sore throat. At first, the palate, tonsils, or pharynx are covered with groups of little vesicles, which burst, become excoriated, run into each other and get covered by a greyish-white pellicle or membrane, resembling the similar false membrane of diphtheria, which begins, however, in another way and under other conditions. The various parts of the throat are swollen, but not nearly as much as in quinsy and the affection is usually confined to one side. A similar form of sore throat sometimes attends advanced stages of consumption in which there has been severe disease of the throat. The disease usually subsides spontaneously in from eight to ten days. Sometimes it is fatal, however, chiefly in children, from extension of the membranes in the air-passages, death taking place mechanically by suffocation. It is difficult to distinguish this affection from diphtheria, especially when the latter is prevalent ; but there is not that profound disturbance of the system due to blood-poisoning which is the chief characteristic of diphtheria. Common membranous sore throat often occurs again and again in some individuals, which is not the case with diphtheria.

SORE THROAT, MEMBRANOUS, TREATMENT OF

The appropriate treatment for this affection is that for ordinary sore throat, with such cleansing and astringent washes, sprays and lozenges as the doctor may deem suitable. The reason why it is necessary to call in a doctor for this particular form of sore throat is in consequence of the possibility of its being of a diphtheritic nature. Having regard to the exceedingly serious character of diphtheria there can be no question whatever of the prudence of taking medical opinion in every case of membranous sore throat and of course the earlier their advice is procured the better.

SPECTACLES

Spectacle lenses are usually made of crown or flint glass. The former is less expensive, but is softer and more easily scratched. Rock crystal, or Brazilian quartz, is also used and is commonly known as "pebble." It has no advantage over glass, except in hardness ; in fact, the opticians find it difficult, or impossible, to distinguish between them without a polariscope or a file. Many people, however, are not satisfied unless they have "pebbles," or think they have them ; for glass is very often sold instead. What is essential in glasses is, that they shall be perfectly clear, of uniform density, free from flaws, and properly ground with the right curvature. These essentials are by no means always to be found in cheap glasses ; so that it is exceedingly foolish and may be attended with serious results to purchase cheap spectacles. In view of the importance of the sense of sight, on the one hand, and the delicacy of the organ, on the other, it is imperative to buy spectacles only of makers of established reputation. The kind of frame to be used is very much a matter of taste. It is important, though, that it should set properly and that the glasses should be correctly centred ; that is, that their centres should be opposite to the pupils. Sometimes, to produce certain effects, oculists order them decentred—the centres placed closer together or farther apart than the pupils. Theoretically, the use of eyeglasses, as compared with spectacles, is not to be encouraged ; but practically they will always be extensively used, and, in some cases, may answer the purpose sufficiently well. At the same time the use of the monocle is too often dictated by considerations of fashion and is to be deprecated. There is great sympathy between the eyes, and to favour one at the expense of the other is likely to be attended, in the long run, with adverse results for both. As to the use of the pince-nez, this is obviously a matter of personal preference and taste on which it would be impertinent to dogmatize. In his *Physiology for Practical Use*, Dr. Hinton observes : "The risk of using spectacles too strong is not great and the subject may be allowed to select for himself those that suit him best for reading. They ought to enable him to read easily at twelve inches' distance. It is a natural result from the slowly progressive character of the failure of sight, that stronger and stronger glasses will be necessary as age advances. If the progress is rapid and especially if the glasses do not relieve it so much after a while as they did at first, then advice is needed. You sometimes notice at church an old man with his spectacles on the tip of his nose and his Prayer-Book held as far off as possible. These are sure signs that he wants stronger glasses. The effect of putting the spectacles farther from the eyes is to increase their power. The glasses used ought, however, to be strong enough to allow of their being kept close to the eyes and it ought not to be necessary to hold the book more than a foot away." The spectacle-glasses in most general use are double convex for long sight and old sight and double concave for short sight. They have the same curve on each surface. The periscopic glass is what opticians call a meniscus. One surface is convex and the other concave, and it has the effect of a convex or a concave glass according as one or the other of these surfaces has the sharper curvature. The advantage claimed for it is that the image is less distorted when the rays of the light pass through it obliquely than is the case with the ordinary glass, and that, as there is less necessity for looking directly through its centre, the eye may move more freely behind it and less turning of the head is required. There is no objection to its use, if it is found more convenient ; but it has no optical advantage that compensates for its increased weight and additional expense. Prismatic glasses are used for the relief of the external muscles of the eye. The prisms bend the rays of the light towards their bases and make divergent rays parallel. The degree of assistance given to the muscles in this way is regulated by the angle of the prisms. Prismatic glasses are sometimes used to correct double vision. People frequently postpone the use of spectacles until they are, so to speak, compelled to employ them by failure of sight either for the ordinary purposes of reading and writing, or for viewing things at a distance, as the stage, for instance, or the blackboard in a lecture-room. Of course this disinclination to assist nature is wholly indefensible and proceeds from mere ignorance. When glasses are discovered to be necessary they should be obtained forthwith, because their use relieves the pressure thrown upon the nerve and really helps to prolong the faculty of sight. In such cases it is a golden rule always to err on the safe side.

SPINE, THE

This, in an adult, consists of twenty-six bones ; in a young child, of thirty-three, certain bones in the spine of the child becoming blended with each other in the adult. The spine is more uniform in length in persons of the same race than might be supposed from the differences in stature, the variation in the height of the body in adults being due chiefly to differences in the length of the lower limbs. The average length of the spine is twenty-eight inches. In disease of the spine its natural curves are much increased and the deformity known as hump-back is produced.

SPINE, ANGULAR CURVATURE OF THE

Angular curvature of the spine arises for the most part from ulceration of a scrofulous kind in the bodies of the vertebræ. The support in front being thus lost, the spine is sharply bent forwards, so that one or more of the spinous processes project behind, indicating the position of the diseased vertebræ. This complaint is attended with incomplete paralysis of the lower extremities and is not infrequently fatal. In case of recovery, the bodies of the contiguous vertebræ are approximated and consolidated with what remains of those which were diseased by the deposition of bony matter. It is in this species of spinal complaint only that rest and the recumbent posture are expedient. The patient may have to lie on his back for years. The observance of these essential precautions, concurrently with other means, frequently brings about a cure ; the distortion, however, is permanent. The treatment for this condition must be dictated always by the doctor.

SPINE, LATERAL CURVATURE OF THE

This ailment, which has frequently been mistaken for rickets, is usually called lateral curvature, to distinguish it from the more serious kind of distortion, which is called angular curvature. Unlike rickets, which almost always begins in infancy or early childhood, lateral curvature of the spine seldom appears before the tenth year. The external deformity consists in the prominence of one hip (generally the right), and elevation of the corresponding shoulder, the blade of which sticks out as an obvious protuberance behind. The opposite hip and shoulder are respectively flattened and depressed and the symmetry of the chest is destroyed, one side being larger than the other and both twisted and misshapen. On examination the spine is found to have a double curvature sideways, so as to resemble the letter S, but generally turned the other way, the concavity of the lower curve being on the right, and the upper on the left side. It arises from weakness in the spinal muscles and local elongations of the ligaments of the vertebræ, from the habit of resting the weight in sitting or standing more on one side than the other ; this side is usually the right. The position is more easy than the upright one and when not corrected by fitting exercise and change in the nature of the employment, it becomes habitual and the twist of the person permanent and increasing. The subjects of this kind of distortion are chiefly slender and delicate girls in the middle and upper classes, the poor being comparatively exempt. It comes on insidiously, the attention not being awakened by any particular derangement of the health beyond a certain degree of languor and susceptibility to fatigue and perhaps a sluggish state of the digestion. The first symptom that betrays its presence is usually a tendency of the dress to slip off the left shoulder. It is much promoted by means often used to prevent it, such as confinement and restraint of the person and posture by stays, backboards, high-backed chairs, reclining on a board, and other contrivances to improve the figure and restrain the development of the natural form ; as well as by the sedentary habits and inappropriate exercises of the academy or schoolroom. Nature is not to be coerced with impunity by fantastic caprices and contrivances : a good figure as well as good health must be found, if anywhere, in the open air of the fields, in loose and easy clothing and in unconstrained exercise of the limbs, such as children will always adopt, if left to choose for themselves, in ways much better suited to their age and strength than any that can be invented for them. The general health of the patient must be improved by the use of codliver oil, Blaud's pills, or Parrish's Food, by exercise, and by the avoidance of sluggish habits and one-sided attitudes. The back should be sponged briskly every day with salt water and afterwards vigorously rubbed. To relieve the spine from the weight of the skull and upper part of the body, the patient should rest for a few hours every day, especially on the face. In extreme cases the doctor may order a stiff felt or plaster-of-Paris jacket or other instrument.

SPLEEN, THE

This gland is an elongated body of brittle consistence situated to the left of the stomach and between it and the diaphragm. It is a soft, spongy body, of a dark purple colour, placed above and in front of the left kidney, to which it is connected by small blood-vessels and by the cellular membrane. It also has an attachment to the lower edges of the diaphragm, near the spine. The spleen varies in size, but is generally about four inches long, three inches wide and two inches thick. In animals this organ is very commonly termed the milt. The spleen sometimes becomes greatly enlarged and may then be felt below the ribs to the left of the stomach. This often occurs in protracted cases of ague, particularly if much quinine has been taken. It is plentifully supplied with blood-vessels, but has no excretory duct or outlet. The real use of the spleen is as yet unknown, but it is believed to be specially concerned in the production of colourless blood-globules. It has been removed in animals without being followed by any bad result. The spleen was at one time thought to be the seat of ill-humour and melancholy.

SPONGES

Sponges are never to be used about a surgical case ; they are necessary in certain operations, but rarely at any other time. Use, instead, a syringe, throwing clean water over the surface of the wound, or a soft piece of lint, if it is absolutely necessary to touch the surface, as in freeing a fresh wound from blood ; touch gently, always moving towards the wound.

SPONGY METALLIC IRON

This is regarded as being a very good filtering medium. It softens the water as well as removes much dissolved organic matter from it. But, after all, it is a risk to trust to any filters for the removal of deadly or unwholesome matters from drinking waters and it is wiser, in the case of very bad waters, to boil them first and then filter them.

SPOTTED FEVER

is really a popular name for cerebrospinal fever. The rash, however, is not always present, but when it occurs it consists of dark purplish spots, due to hæmorrhage beneath the skin. When very abundant it may be assumed that the attack is severe. The disease affects poor, over-crowded quarters, and schools, workhouses and barracks are especially liable to it epidemically. The victims are almost always children. The mode of transmission is still unknown. It is believed to be caused by a micro-organism, the meningococcus, though some doctors refer it to the bacillus that causes pneumonia. The attack begins with a sudden feeling of general malaise, followed by fever, shivering fits, headache, giddiness, violent muscular spasms, pains all over and persistent vomiting. Restlessness and delirium soon follow. The head is usually drawn strongly backwards and the patient is extremely sensitive to touch and pressure, even of the bed-clothes. Death may supervene with remarkable suddenness, or the disease may last for weeks and occasion fatal complications. Convalescence is always prolonged, owing to the marked prostration of the sufferer. In mild attacks a few days in bed may suffice to effect a cure. The doctor must be summoned the moment that the preliminary symptoms show themselves. In the interval ice may be applied to the head and back, and mild purgatives and some simple fever mixture administered. Opium and quinine are often employed. Nutritive fluids must be given frequently. The patient must be isolated and the room disinfected. The serum treatment has not fulfilled expectations, but as a last resource the spine has been opened and the diseased fluid around the cord and brain washed out.

SPRAINS

A sprain is an altered condition of a muscle, a tendon, or the ligament of a joint, produced by violence and rendering motion painful. Bruises are always the result of external violence and show themselves by external marks and may occur on any part of the surface of the body. Sprains, on the contrary, being generally the effect of undue or unnatural exertions of some of the muscles, may occur independently of external violence. They are also frequently unattended by outward marks of injury and can only occur in the course of the muscles and principally at the tendinous muscle or in the neighbourhood of a joint. When a man slips in walking, or from any cause feels that he is losing his balance, he makes an unusual effort to recover himself and, in this effort, over-exerts some one or more muscles and is said to receive a sprain. The part immediately, or very soon, becomes the seat of pain ; it may be in the loins, or in one of the extremities ; and this pain is considerably aggravated by an attempt at motion and for a long time afterwards motion of the part will excite pain. Again, a person in falling puts out his hand to save himself and by the violent exertion of some of the muscles of the arm, or, it may be, by the jar, or shock of the hand upon the ground, some of the muscles, or the tendons about the wrist, the elbow, or the shoulders are sprained ; or the ligaments connected with any of these joints may be stretched or otherwise injured. The pain is sometimes immediately intense, at other times but slight at first and very severe afterwards, although there may be no fracture or displacement of a bone and not even the external appearance of a bruise. If a person in running or jumping trips against a stone, or alights on uneven ground ; or if, when riding on horseback, his horse stumbles and he makes an unwonted effort of some of the muscles to preserve his balance, he experiences, either immediately or soon after the accident, considerable pain in the foot, the leg, the knee, the hip, or the loins, and will, perhaps, for a long time afterwards, feel painfully the effects of such a sprain. In these accidents there is often no external sign of injury at the time and, if the mischief be only slight, there will frequently be none afterwards ; but in other cases the usual appearances of a bruise will, in a day or two, be discernible, although there may have been no blow or external pressure. In all cases of severity there will be more or less of swelling and other symptoms of inflammation, particularly if the ligaments about a joint have partaken of the violence. As the nature of the accidents which produce sprains is so various, so the nature of the injury sustained is not always the same. In a majority of cases there is, in all probability, a rupture of some of the small muscular fibres, sometimes a rupture of a fasciculus of these fibres, or the whole of a small muscle, or of its tendon. The frequent concomitant appearance of a bruise is sufficient proof that in these cases small blood-vessels are ruptured. The speedy swelling which sometimes ensues arises, in all probability, from the rupture of lymphatics and there is no reason to doubt but that in other cases more deep-seated vessels, both sanguineous and lymphatic, are ruptured, when no corresponding appearances display themselves externally. The pain so constantly accompanying sprains bespeaks the implication of nervous filaments in the original injury and indeed the rupture of the smallest fasciculus of muscular fibres implies the rupture of the nerves and vessels which enter into its structure. Sprains should never be neglected, else they may end in permanent stiffness, swelling and pain of the part affected. Rest is imperative. At first cold lotions may be used to prevent swelling, but at a later stage hot fomentations will be more soothing. To keep the joint or limb at rest and fixed, while enabling the patient to get about, it is possible to place it in plaster-of-Paris or strap it up with plaster. For simple sprains, when the skin has not been broken, it may suffice to apply arnicated vaseline and take rest for a while.

SPRAINS AND BRUISES

See Embrocations.

SPRAY

The spray disperser is an apparatus contrived for the dispersion of spray and its inhalation. The usual form of it is that of two india-rubber balls, by which air is forced so rapidly through a tube as to cause a vacuum in a lower tube below it and the rapid rise of liquid from the bottle in which the tube is fixed. This instrument supplies the place of gargles and is very useful in the case of sore throat. Iced water and medicated substances are thus used.

SQUINT

The strain of the accommodative power in hypermetropia is the cause, in a great majority of cases, of squint, or "cross-eye." The demand for excessive accommodation causes an unusual tendency to convergence, which ends in a permanent turning inwards of one eye. This kind of squint usually begins in children three or four years of age, or older, at the time when they begin to occupy themselves with near objects, as toys and pictures and to demand accurate vision. At first it occurs only when the eyes are directed to some near object ; then occasionally, even when a distant object is looked at steadily or carefully, particularly if the child is not well and is, therefore, less equal to the strain than usual ; and, finally, one eye remains constantly turned in towards the nose. The origin of the squint is frequently referred to some attack of sickness.

as measles, scarlet-fever, whooping-cough, or convulsions. This may be merely a question of coincidence, as these diseases occur very frequently at about the age when squint is developed; or they may act as exciting causes, by reducing the strength of the patient, so that the eyes are less able to bear the strain; but the real cause is a defect in focus, due to the fact that the eye is not properly formed—is not "according to measure." When a want of harmony in the action of the external muscles of the eye-ball causes the image to fall on parts of the retina which do not correspond, double vision at once results. To avoid this annoyance, persons with squint have to use only one eye; the image on the retina of the other is said to be "suppressed." In consequence of the constant suppression, the vision of the squinting eye becomes greatly impaired, in fact, accurate vision is lost, though the eye remains perfectly healthy. In the early or periodic stage, before it becomes constant, this kind of squint may be cured by correcting the optical defect with proper glasses, which remove the cause by taking away the strain. Of course there are obvious difficulties in the way of this treatment in the case of very young children. It is worth some trouble, however, to remove so great a deformity without an operation and at the same time to preserve the sight of both eyes, which is rarely, if ever, done by even the most successful operation, after the defect has been for some time established. After the squint has been cured by an operation, there is danger of its return unless glasses are worn. In high degrees of short sight, there is an excessive demand made upon the muscles that move the eyes inwards (converge them) in the effort to keep them both fixed upon small objects held close to the face. Sometimes they prove unequal to this strain and give out, and one eye is turned outwards by the opposing muscle, forming an external squint. The constant strain involved in the effort to overcome this tendency to external squint is prominent among the causes that increase short-sight and, when it cannot be relieved by suitable glasses, an operation is sometimes necessary. This insufficiency, as it is called, of the muscles that move the eye-ball to do the work demanded of them, sometimes exists without short sight. These are the principal, but not the only causes of squint. A squint occurring suddenly, with double vision, is generally the result of paralysis of one of the external muscles of the eye-ball and is frequently the first symptoms of serious disease of the brain. Such a case should receive immediate medical attention.

STAMMERING

Stammering and stuttering, though commonly confused, are not identical. Stammering is due to one or both of two causes, spasm of the muscles of the lips and tongue or of those governing the supply of air needed for the emission of sound, or imperfect co-operation of the muscles used in speech.

Stammering is a spasmodic arrest of speech due to one of these causes, whilst stuttering is the spasmodic repetition of words or the first syllables of words. The latter is the less common impediment to speech, and is also the more difficult to cure. The first step in the treatment is to discover which part of the mechanism is at fault, and to endeavour by means of suitable exercises, respiratory and other, to restore the muscles to their normal state. The symptoms of the ailment are very helpful in determining the proper treatment; as for example, in the case of stammering due to spasm of the cords which control the exit of the breath. In this case the patient may stand speechless and breathless for several seconds, and when the spasm relaxes he will pour out his words in a rapid stream, so as to pronounce as many as possible before the next intake of breath, which may entail a recurrence of the spasm. In these cases respiratory exercises are obviously needed, and the patient should be made to draw deep and even breaths for a specified time daily. In the case of imperfect co-operation between the respiratory and articulating muscles the patient will place his mouth and throat muscles in position for pronouncing the desired word, but at the proper moment the respiratory muscles do not permit the escape of the necessary amount of air for the production of sound. The word is perfectly shaped, but the sound is wanting. It is a curious fact that stammering is five times more frequent in boys than in girls.

Stammering children should always be examined to make sure that there is no mechanical impediment, such as adenoid growths, to be found. Such should of course be removed if present. These are however very rarely the sole cause, though they may be contributory.

Dr. Guthrie points out that in the great majority of cases the fault is respiratory. The patient must therefore be instructed in the first place how to increase the vital capacity of his lungs by exercises such as those suggested above. He must also be taught to control the exit of his breath, first without, and secondly together with vocalization. He must learn to vocalize his vowels with steady prolonged resonance, and to direct his attention to this, rather than to articulation. He must intone the vowels, and be shown how to introduce the consonants meanwhile, as for instance in uttering the sound O-Mo, O-Do, O-To, etc. He will thus learn that vocalization of vowel-sounds aids in giving utterance to the consonants over which he stumbles.

STICKING PLASTER

Sticking plaster, called also adhesive plaster or resin plaster, is used to bring the edges of wounds together and to retain applications in position. It should be cut in strips varying in breadth from a quarter of an inch to an inch and a half, and in the direction of the length of the web and not across the breadth, as it will stretch and become useless if so cut. The best mode of heating it is by applying the linen side to a tin vessel containing hot water. The flame of an alcohol lamp, or candle, may also be used for this purpose. The edges of the wound should be held together with the finger and thumb of the left hand, while one end of the strip, held in the right hand, should be laid on the skin at a distance and brought across the wound tightly. Before the application of sticking plaster, the part should be well dried and any hair shaved off.

STIMULANTS

The results of a very thorough examination of the action of alcohol upon the system may be summed up in a few words. In small amounts it is an arterial and cerebral stimulant, increasing the activity both of the circulation and of the workings of the brain ; in large quantities it paralyses both brain and heart. It is regarded in one sense as a food, in that it is capable of being burnt up in the system and yielding force ; but at the same time it lessens the activity of nutrition, upon which the production of force depends. It does not seem to be, on the other hand, a food in the narrower sense of the word—i.e., it is not a substance capable of being formed into tissue. When in sufficient amount, it appears to have the power of checking tissue change. Taken with food in proper quantity, it aids digestion by stimulating the gastric juices to secrete. Taken without food and in a concentrated form, its irritant properties come into view. Picked up by the veins of the stomach, the alcohol is carried directly to the liver, which, when it is taken undiluted upon an empty stomach, it reaches almost as concentrated as when imbibed and, by its irritant action, chronic inflammation of the liver may be produced. Carried through the blood-vessels, the poison is constantly in contact with their walls, and hence, in habitual hard drinkers, chronic inflammation of the coats of the vessels, with aneurysm and apoplexy in their train, are frequent. If drunk in excess, alcohol escapes from the body through the kidneys and it may so irritate these organs by its continual presence in their most secret structures, that Bright's disease or chronic inflammation of the kidneys will be the result. For the brain, alcohol has a special fondness. In the hollow places in the cerebrum, known as ventricles, it has often been found in very notable amount. Even when the daily tipple never reaches the point of slight intoxication, it is fraught with evil. Especially is this so if a strong liquor be used undiluted upon an empty stomach. A dram taken in the middle of the morning, amounting to two or three ounces of whisky, is far from serviceable. The man who requires a couple of ounces of whisky or brandy before breakfast has travelled far towards ruin. It is by no means clear that evil results are produced by the habitual employment of small quantities of well-diluted alcohol, as beer or wine. Only a few truths can be affirmed with certainty. It may be assumed as demonstrated, that in the young and vigorous man, not overworked and supplied with plenty of good food, alcohol is not in any sense a necessity and, if in the least excess, does harm. It tends to provoke appetite and promote digestion when too much food has been already eaten. It tends to limit tissue-waste, whereas in health tissue-changes rarely, if ever, proceed too fast. It is plain that to the sedentary person, whose unused muscles require little food and waste too slowly, alcohol is doubly dangerous. The use of alcohol is more apt to be injurious to the clerk than to the peasant.

STIMULATING AND DETERGENT LOTION. *See* LOTIONS.

STITCH, OR PAIN IN THE SIDE

When this is symptomatic of disorder in the lungs or digestive organs, it is to be removed by the means usually employed to restore these viscera to a healthy state. When it does not so result, it is usually occasioned by chronic inflammation of the pleura—that is, the membrane lining the cavity of the chest ; by habitually forcing the chest in writing against the hard edge of a desk, or by the use of tight stays. If the patient has reason to consider it to be owing to either of the last two causes, he may regard it as depending on the inflamed state of the pleura, especially if the pain is increased on pressure and on taking a deep inspiration. Should close application to writing, or the use of tight stays, have given rise to this pain, these practices must be abandoned at once. Without this no great or permanent benefit can be gained, but with such reasonable co-operation the means prescribed by the doctor will seldom fail to remove the complaint. When pain in the side is associated with a deranged state of the stomach and general health and there is a good deal of general languor and debility, a pill composed of a grain of calomel with the same quantity of James's powder and opium every night, will be found useful, some mild tonic medicine being taken during the day.

STOMACH, THE

The stomach is the reservoir for food and drink. Its office is to convert the food into chyme. For example, a mass of bread comes down into the stomach. Shortly after its entrance it begins to move about. This is accomplished by a peculiar motion of the stomach. As this mass of bread is pushed about from one part of the stomach to another, it soon begins to undergo a change and in about a couple of hours it changes into a fluid resembling butter-milk. That is chyme. This change constitutes the principal office of the stomach.

STOMACH-ACHE

See PAIN IN THE STOMACH.

STOMACH AND BRAIN, SYMPATHY BETWEEN

There is a wonderful sympathy between the stomach and all other parts of the body. But that between the stomach and the brain is so active and perfect that the acutest physician is often greatly puzzled, in trying to decide, in a case of sickness, whether the one or the other is really to blame. Nothing is more common than to meet a long-standing case of dyspepsia, in which the prominent and almost the only symptom is a dull and fretting headache. Some persons have suffered many years from what they believed to be grave organic disease of the stomach, pointing to their stomachs on their death-beds and saying, "You will find my stomach one mass of cancer." In such cases, however, the doctor has found, on examination, a healthy stomach, better than the average, because of an abstemious diet; but in the brain he may come upon evidence of long-standing and serious disease. The sympathy between the brain and stomach is so complete that an experienced doctor seldom examines a case of disease of one of these organs without making the other one likewise the subject of study.

STOMACH PUMP

"The stomach pump," says a medical authority, "consists in a small pumping apparatus, to which is attached a long elastic tube, of sufficient length to be passed down the gullet into the stomach. This tube, at the point where it passes into the mouth, is usually guarded from the action of the patient's teeth by a perforated gag of wood. The stomach pump, though not used so frequently and indiscriminately as in former days, is, however, an invaluable and indispensable aid in the treatment of cases of poisoning by opium and other narcotics and of extreme drunkenness caused by poisonous quantities of spirits. It may be laid down as a general rule, that the stomach pump ought always to be used when the patient, under the influence of a narcotic or alcoholic poison, is too much exhausted or too insensible to swallow emetics or antidotes, or where, as in cases of attempted suicide, he obstinately refuses to swallow. One or two pints of lukewarm water should first be pumped into the stomach and then be withdrawn with part of the contents of the stomach and of the poison. This process should be repeated until the injected water, when pumped back again, is found to be clear and colourless. Very often, however, the simple introduction of the stomach pump, or the presence of a small quantity of warm water, will cause vomiting ; but in cases of intense narcotic poisoning, the stomach is generally insensible to the pressure of the tube and requires to be well washed out. When in cases of poisoning the patient is able or willing to swallow and vomiting can be produced by the frequent administration of warm drinks, the stomach pump ought not to be used. This instrument is not always a harmless one and, when used by inexperienced hands and in circumstances exciting haste and confusion, may do considerable mischief. The mucous membrane of the throat, gullet, or stomach may be wounded by the violent introduction of the tube and some bleeding from the raw surfaces may be produced. A more serious accident is the introduction of the tube into the air-passages instead of the gullet and stomach. A case has been recorded in which, after death from sulphuric acid poisoning treated by the stomach pump, the windpipe, bronchi and large portions of the spongy tissue of the lungs were found choked and plugged with chalk mixture, which it had been intended to introduce into the stomach. Another danger attending the use of the stomach pump is laceration of the mucous membrane of the stomach, strips of which are drawn into the orifices of the tube as the fluid contents of the stomach are being withdrawn. This occurs only in cases where the inner coat of the stomach has been softened by some corrosive agent and on this account it has been laid down as a rule that the stomach pump ought not, except in special circumstances, to be used in cases of poisoning by the mineral acids."

STOMACH, ULCERATION OF THE

See GASTRIC ULCER.

STONE

forms either in the kidney or bladder as a result of the deposit in the urine of several substances, of which the principal are uric acid, oxalate of lime and phosphates—the first two occurring usually in the kidney, the last in the bladder. Uric acid stone is found in indigestion, liver complaints, diabetes, St. Vitus's dance and in several febrile states. Oxalic acid occurs in consumption, chronic bronchitis, nervous disease and hypochondria. Phosphates are symptomatic of anæmia, debility and nervous dyspepsia. In stone in the kidney the urine becomes thick and smoky from the presence of blood and water is passed with great pain, heat and smarting. When the stone passes down the ureter from the kidney to the bladder, the pain is of the most exquisite description. In stone in the bladder the water is passed in small quantities with great frequency and when the stone plugs the passage from the bladder water cannot be passed at all. The urine is often thick and bloody and pain is frequently acute. The treatment is either curative or heroic. In the case of kidney stone, dietetic errors must be corrected at once and for good. Intoxicants must be given up and pastry, sweets, fatty foods and " made-up " highly-seasoned dishes abstained from. Fish, lean meat, varied vegetables, fruit and milk are all good in moderation. Outdoor exercise taken regularly is a desideratum and the bowels must be maintained in thorough working order. Vichy, Carlsbad, and Friedrichshall are the most suitable mineral waters. Uric and oxalic acids may be partially dissolved in such an alkaline solution as that recommended by Dr. William Roberts, namely (for an adult), 40 or 50 grains of the acetate or citrate of potash in three or four ounces of water every three hours during the day and at least once during the night—to be continued for two or three months. To relieve the distressing pain of the passage of the stone down the ureter, hot fomentations sprinkled with 30 or 40 drops of laudanum must be applied to the loins, and 15 drops of laudanum may be given to an adult and repeated in an hour if the pain is still acute. Sometimes operation is called for and this demands the skill of an expert surgeon. For phosphates the digestive system needs to be restored, and the general condition improved by a nourishing diet, in which animal food should find a place. As a tonic the following medicine should be administered thrice a day half an hour before food :—Dilute nitro-hydrochloric acid, 15 drops ; syrup of oranges, ½ drachm ; infusion of gentian to the ounce. Regular open-air exercise, cold bath, avoidance of overwork and freedom from worry are all concomitants in the cure. When operation is needed for stone in the bladder, this may take the form either of crushing (lithotrity) or cutting out (lithotomy). The surgeon of course will decide which will better suit the case.

STRABISMUS

Strabismus, or squinting, may be caused by paralysis of the small muscles that move the eye, teething, water on the brain, worms and brain affections that involve the eye muscles. When the eyes turn towards the nose the squinting is called convergent, when they turn away from it it is called divergent, the former being the more common. The treatment depends upon the cause. When the worms are expelled, or the teeth cut, or the brain trouble is cured, the strabismus should disappear. Tonics, however, must be given for a period and strengthening diet is required. An oculist should be consulted for the best type of glasses to correct any error of the sight. If curative treatment fail, the surgeon's aid must be sought, to prevent the defect from becoming permanent. The operation consists in dividing one of the muscles and letting it heal again after the eye has been adjusted.

STRANGULATED HERNIA

See HERNIA, STRANGULATED.

STRICTURE

Stricture, or contraction of any of the natural passages in the body, may occur as the effect of disease or injury ; but by the term stricture, in its general sense, is meant that affecting the urethra, or channel by which the urine passes from the body. Stricture of the urethra may be either spasmodic or permanent.

STRICTURE, PERMANENT, CAUSES OF

Permanent stricture, or, as it is called, organic stricture, is a contraction of the urethral canal in one or more places, owing to the infiltration of plastic effusion and a fibroid degeneration of the tissues. A constriction is thus produced, varying in tightness, in some cases almost completely blocking up the canal, whilst in other and simpler ones it is very slight. Occasionally a fibrous band is found stretching across from one side of the canal to the other, forming what is termed a bridle stricture. Organic strictures are generally situated in that portion of the urethra just in front of its bulbous portion ; frequently they are found nearer the orifice. The most frequent cause of stricture is neglected gonorrhœa and perhaps the ill effects of improper remedial agents ; patients frequently treating themselves, or getting into the hands of quacks. Stone in the bladder and injuries of the urethra may also be cited as causes.

STRICTURE, PERMANENT, SYMPTOMS OF

The symptoms of an organic stricture are : difficulty in micturition, a small stream of urine (generally forked or dribbling), pain during the act of making water and frequent desire to do so.

STRICTURE, PERMANENT, TREATMENT OF

The treatment consists both of constitutional and mechanical means. As regards the constitutional, any stomach disorders, irritating urine, or inflammatory tendency must be removed and temperance, rest, early hours, warm baths and alkaline remedies will do much towards assisting such mechanical means as may be deemed necessary. The mechanical treatment of stricture is of such importance that experienced surgical advice must always be taken as early as possible. Stricture may be dilated by bougies, expanding instruments, a catheter retained in the bladder, caustics, incisions or external division. The bougie is frequently able to be used by the patient himself, after he has been instructed in the method of using it ; it must be flexible and strongly made, to avoid its breaking in the passage. By the introduction of bougies of gradually increasing thickness, distension is combined with compression and by this means the ring-shaped cicatricial constriction of the urethral canal is frequently overcome ; if applicable to the case, this constitutes by far the most satisfactory course of treatment. The treatment by expanding instruments consists in the introduction of some appliance, whereby mechanical distention is obtained, either sudden or forcible, or gentle and gradual. Many ingenious methods are in use and are more or less effective in different cases and in different hands. Treatment by the retention of a catheter in the bladder is of value in cases of hard, gristly cartilaginous strictures and in cases of false passage. It consists in tying a small catheter in the bladder and subsequently a larger one, until the stricture suppurates and becomes dilated. Caustics are occasionally applied to the canal by instruments specially devised for the purpose; lunar caustic or nitrate of silver is the agent employed. Division of the constricting portion is effected in some instances by internal section, some contrivance being introduced carrying a cutting edge, such as the urethrotome. The urethra has, in some cases of complication, to be opened from without, in order that the urine may come away; the operation by means of which this is effected is termed perineal section—an operation requiring great manipulative skill and considerable patience on the part of the surgeon.

STRICTURE, SPASMODIC, CAUSES OF

Spasmodic stricture is of frequent occurrence in persons who have an irritable urethra, so rendered by repeated attacks of gonorrhœa, or who may have some slight organic stricture. The symptoms are liable to come on after too much drink, irritation of the lower bowel from piles, etc., getting wet, horse exercise, or some unnatural condition of the urine. An inability to pass water after a too long voluntary retention of the urine in the bladder must be distinguished from permanent stricture, as it depends upon spasm of the neck of the bladder or urethra, from some such causes as the above.

STRICTURE, SPASMODIC, SYMPTOMS OF

The symptoms of this painful ailment are as follows: the person has a great desire to pass water and on straining finds himself unable to do so; the bladder becomes distended and appears as an increasing tumour above the pubis and, if not relieved, the continued efforts at evacuation may terminate in rupture of the urethra and extravasation of the urine.

STRICTURE, SPASMODIC, TREATMENT OF

In such cases of stricture, especially those arising from debauch of any sort and when such symptoms have not previously existed, a hot hip-bath and a good dose of opium cause speedy relief. Tincture of iron, in ten-drop doses every ten minutes, is often of use. If the symptoms still continue, the catheter must be passed, a large one being used, for choice, a No. 8 or 9.

STYE IN THE EYE

See BOIL OR STYE ON THE EYELID.

SUCKLING, FOR WHOM UNDESIRABLE

However anxious some mothers may be to bring up their offspring at the breast, it may be necessary, both for their own and their child's safety, to forego this privilege. Frequently when a parent continues to suckle her child after the medical attendant has prohibited her doing so, she undermines her own health and induces a weakly habit of body in her infant. The first class of those who ought not to suckle their children includes such as are consumptive. Any mother who has an inherited tendency to this disease runs a great risk of imparting it to her child if she bring it up at the breast. She, therefore, who is so circumstanced will be acting most kindly by her offspring if she do not attempt to nurse it herself at all. The best thing in such a case is to procure a strong and healthy wet-nurse. By so doing, advantage is given the child of obtaining nourishment from a healthy source, which will go far to improve its general health and, by laying the foundation of a stronger constitution, may do away, in great part, with any taint which the child may have inherited at birth. There is another class of women who ought not to suckle their children, namely, those who are nervous and excitable. The influence of the mind upon the milk secretion is very great and anything that exerts a greatly disturbing influence upon the mother will affect her milk in such a degree as to cause it to be noxious to the child. In addition to the two classes already noticed, there is yet another, including those whose nipples are so depressed that they are obliged to give up all attempts at nursing. As this is frequently the result of carelessness, every woman should be on her guard during pregnancy to see that the corset does not press injuriously upon the breasts. Of course, when the nipples are so depressed, means should be employed to elevate them and render them fit for nursing, ere the mother give up all attempts to suckle her child. Should they on being tried prove ineffectual, a wet-nurse must be sought for the child, or it must be hand-reared. Lastly, there are some women who are debarred from bringing up their children at the breast owing to some natural defect in the nipple, which cannot be overcome by any means that is within the power of the doctor to employ.

SUCKLING, PROTRACTED

The earliest symptoms that suckling is being protracted beyond the natural period and that the baby should be weaned are when the mother feels a dragging sensation at the back when the child is in the act of sucking, and an exhausted and sinking feeling at the pit of the stomach afterwards. Then come loss of appetite, costiveness, pain on the left side, giddiness, depression of spirits, palpitation of the heart, profuse perspiration and weakness of the retina. These symptoms, if unchecked by promptly stopping the nursing of the child and an effort to build up the system, often result in temporary insanity. It is absolutely wicked to allow prolonged suckling, which is bad for the mother and bad for the child. Doctors are not a little to blame for this condition occurring with women who have been under their care and in whom, had they been sufficiently observant, they might have detected indications which prohibited suckling.

SUDORIPAROUS GLANDS

(Latin, **su'dor,** "sweat"; **pario,** "I produce").

The sudoriparous or sweat glands are in the form of tubes of about $\frac{1}{300}$ of an inch in diameter, which are twisted into coils at the very deepest portion of the corium, or true skin, or even in the subcutaneous tissue, and then extend throughout the entire thickness of the skin and open on the surface. The openings of the sweat glands are arranged somewhat regularly and may be seen with a magnifying glass, especially on the palms of the hands, in rows between the slightly elevated ridges of the skin. These glands are very numerous in some parts; on the sole of the foot and palm of the hand there being about 2,700 in each square inch, while on the cheeks there are but about 550 in the same space and on the forehead about 1,250. According to careful computation, the total number of sweat glands in the body amounts to almost 2,400,000, and as each little gland, when its coil is unravelled, would measure about $\frac{1}{15}$ of an inch, their entire length amounts to not less than 153,000 inches or about two and a half miles. The very great importance of the skin as a secretory organ will be readily understood when the vast surface thus presented is considered.

SUDORIPAROUS GLANDS, ACTION OF

The action of these minute glands is not intermittent, but continuous ; during the entire time sweat is exhaled in the form of vapour, or insensible perspiration ; and only when the body becomes much heated, as by exercise or otherwise, does the perspiration manifest itself to the eye and touch. The total quantity of fluid thus given off by the skin is subject to the greatest variations, according to temperature, moisture, exercise, quantity and quality of food and drink taken, etc. In the average person in health, however, careful experimenters agree in placing the amount at about two pounds, or pints, daily, a quantity almost equal to that excreted by the kidneys.

SUFFOCATION

Suffocation may take place either from exposure to some noxious air, or from the exclusion of air altogether. Instances of the former kind are not uncommon from accidental confinement in rooms heated by charcoal ; from persons falling asleep very near to, or upon, kilns of burning lime ; or from incautiously venturing into common sewers, or wells, without first ascertaining the state of the air by the test of lowering a lighted candle. The most common occurrence of the second species of suffocation is when an infant is, from carelessness or ignorance, so covered with bedclothes, or overlaid by the mother or nurse, as to exclude the access of fresh air to the lungs. In all cases of suffocation the treatment is the same as described in cases of drowning, with this additional observation, that the recovery is frequently expedited by first exposing the body to the air and dashing cold water over it. When called to a person found dead, or apparently dead, where the probability of drowning, hanging and suffocation is entirely out of the question and where no marks of external violence can be discovered, you will be led to expect intoxication. And if there is a smell of spirits, or fermented liquor, about his person, suspicion will almost amount to certainty, particularly if you discover proofs of his having recently thrown up the contents of his stomach and if these emit the odour of beer, wine, or spirits. In such a case you should place the head in a natural position, throw water in the face, endeavour to administer an emetic, and then, if there be no signs of life, use all the means recommended for the recovery of persons recently drowned. The immediate cause of suspended animation, or death, in such cases of intoxication, is sometimes apoplexy and sometimes syncope or fainting. With a purple and bloated countenance and bloodshot eyes, indicative of the former, an attempt should be made to bleed in the arm, or, if a surgeon be at hand, in the jugular vein ; if, on the contrary, the countenance be pallid, warmth, stimulants to the nostrils and the occasional dashing of cold water should be the expedients first resorted to.

SULPHATE OF LIME AS A PURIFIER

Sulphate of lime (gypsum, plaster-of-Paris), sulphate of lime and porous clay are all valuable absorbents of ammoniacal gases and foul effluvia.

SULPHUR, CONFECTION OF

See ELECTUARIES.

SULPHUR OINTMENT

See OINTMENTS.

SULPHUROUS ACID

Sulphurous acid is easily made by burning sulphur ; it decomposes sulphuretted hydrogen and acts powerfully on organic matter. This gas is extremely useful ; a small quantity burned in the morning in a hall, or on a staircase, will purify a house very readily and no disagreeable smell will remain ; it is thus useful in a children's hospital or in a nursery wherever there is close air.

SUNBURN

Heat and cold alike, when sufficiently intense, produce inflammation of the skin. The direct rays of the sun, in which there is combined action of high heat and intense light, speedily bring about that group of changes in the skin of persons unaccustomed to such exposure that is called "sunburn." There is redness varying from a slight blush to an intense red, or even purple. If the exposure be not too great the redness gradually subsides, the smarting ceases and nothing remains but a deepened colour at the surface. If the exposure be long continued, inflammatory symptoms cease, but the colour is deepened until the skin is bronzed, as seen in sailors and soldiers after a summer campaign. Very great exposure may, however, be followed by troublesome and painful symptoms in those whose skin is delicate. The redness is intense, the skin swells, blisters form and the surface becomes raw, as if burned. The suffering attending this condition is often very great. It is, however, of short duration and the malady tends to spontaneous recovery upon the avoidance of the cause.

SUNBURN, PREVENTION OF

Preventive treatment consists in guarding against undue direct exposure as far as possible by the use of suitable articles to shield the face, neck and other parts exposed, and especially by only a brief exposure to the sun for the first few days.

SUNBURN, TREATMENT OF

When active inflammation has been excited, the application of soothing lotions is useful. Dilute lead-water is often employed. Very rapid relief sometimes follows the employment of the carbonate of soda in solution, of the strength of one to two drachms to a pint of water. These preparations are best used in the form of evaporating lotions, by means of masks or compresses of one or two thicknesses of cotton-cloth, which are to be wetted and re-applied as they become warm, for several hours at a time. Zinc ointment also often serves an excellent purpose and vaseline camphor ice not only cures the sunburn, but also allays all irritation of the skin. As the inflammatory process subsides and the skin begins to dry, bland ointments, such as zinc ointment, may be applied, or a dusting powder, such as rice-flour, starch, or fine rye meal. Sunburn may occasion eczema in persons who are predisposed to that affection.

SUNSTROKE

Sunstroke has been known from the earliest historical times. The reader will recall the graphic story of the child of the woman of Shunem, related in the Bible: "And when the child was grown, it fell on a day that he went out to his father to the reapers. And he said unto him, 'Father, my head, my head.' And he said to a lad, 'Carry him to his mother.' And when he had taken him and brought him to his mother, he sat on her knees till noon, and then died." To the people of a "dry and thirsty land" the promise that the "sun shall not light upon them nor any heat," is rich in meaning, and the metaphor of the shadow of a great "rock," has a signification that we can scarcely comprehend. Sunstroke was formerly confounded, even by doctors, with a number of other diseases, among which may be mentioned continued and remittent fevers, to which many cases certainly bear a resemblance, and apoplexy of the brain, with which the more rapidly fatal cases have many symptoms in common. Sunstroke is a very fatal affection. The conditions with which it is most likely to be confounded are apoplexy of the brain and insensibility produced by alcohol or other narcotics. A person walking in the street is seen to totter; he sits down and soon sinks to the earth, or he may fall at once; or a workman lets his tools drop from his hands and in a moment falls to the ground. On examination he is found to be in a state of unconsciousness. He lies quiet, or there may be restlessness and, rarely, talkative delirium; still more rarely, he may be roused for an instant by shaking or shouting in his ear. There are other symptoms, but many of them would escape the attention of an untrained observer; others might not at once appear. One is, however, constant and most readily recognized. It is the intense heat of skin. It almost scorches the hand. This is of the utmost value as pointing to sunstroke. Or the patient may have been found insensible, in which case his life will depend upon the prompt action of the bystanders. The discrimination of these conditions is of the greatest practical value. Comparison of the principal symptoms, as arranged in the following columns, will be of service as fixing them in the memory:—

APOPLEXY	SUNSTROKE	ALCOHOLIC INTOXICATION
Attack sudden.	Attack sudden, but usually preceded by dizziness, disturbed vision, headache.	Insensibility comes on gradually after the stage of excitement.
Insensibility usually complete for a varying length of time.	Deep insensibility of shorter duration. Patient may often be roused by shouting or shaking.	Insensibility rarely complete.
Breathing stertorous. It is slow, irregular and explosive in expiration.	Also snoring breathing. Apt to be rapid and laboured; noisy from presence of mucus in the upper air-passages; not explosive.	Respiration slow and snoring.
No convulsions.	Convulsions often recur. Twitchings of muscles.	No convulsions.
Paralysis of one side or the other.	No paralysis.	No paralysis.

Apoplexy	Sunstroke	Alcoholic Intoxication
Flushing of face.	Face often deeply flushed; or, together with the whole surface, it may be of a dusky hue.	Face dusky and bloated.
Pupils often uneven.	Pupils alike; immovable; they may be contracted, dilated, or about normal.	Pupils alike.
Pulse slow and full.	Pulse very rapid and sharp; often wanting in volume.	Pulse slow.
Skin cool and moist.	Skin intensely hot. Usually burning and pungent to the touch and exceedingly dry. More rarely it is bathed in a profuse perspiration.	Skin cool and leaky.

SUNSTROKE, CAUSES OF

Intemperance is universally acknowledged to be a predisposing cause of sunstroke; so, also, are debilitating influences of every kind, particularly those of such a character as lower the tone of the nervous system and increase its irritability. Among the latter group of influences may be mentioned previous prolonged exposure to a high temperature, not in itself sufficiently intense to cause the disease, but having an unfavourable influence on the nervous system and in this way impairing its powers of resistance; excessive fatigue, bad ventilation, at night especially; the febrile state and the debility following other diseases. Owing to the different nature of the avocation of the sexes, the affection is very much more common among men than among women and, partly owing to their more delicate organization and partly to their ignorance of danger, numerous cases occur among children. There is a preponderance of opinion that the plethoric, or full-blooded, are more liable to sunstroke than others. Whilst the foregoing conditions are predisposing causes—that is to say, whilst they increase the liability to the disease—the sole exciting cause, that is, the cause which actually produces it, is heat, intense and prolonged. No class of persons exposed to its influence are exempt from danger. The direct rays of the sun, however, are not necessary to the causation of sunstroke. The attack may not only occur at night, but the affection is also encountered on shipboard.

To those exposed by their avocations to the action of high heat, a few words of advice as to the precautions by which the dangers of sunstroke may be lessened will not come amiss. Temperance in living; the greatest moderation in the use of alcoholic beverages, or, better still, total abstinence; cleanliness; frequent bathing and friction of the skin. Puddlers, furnace-men, persons who fire china-ware, expose themselves with impunity to a temperature far above that of the body in sunstroke for the reason that the skin acts freely. It is bathed in a proper perspiration, which evaporates with a rapidity proportionate to the surrounding heat and in this way keeps the body at its normal temperature. With a dry, non-acting skin, these men would scorch. The clothing should be light and loose; thin flannel is the best underwear for the body. The head-covering must be light and wide, so as to protect the head and neck. The evaporation from a wet handkerchief, or the countryman's cabbage-leaf in the hat, keeps down the heat. Over-fatigue is to be shunned and long hours of rest should be courted. The sleeping-place must be the coolest possible and well ventilated. All field operations in midsummer—such as harvesting—should be conducted quietly, without hustle and fitful outbursts of great energy.

On the occurrence of the symptoms, pour cold water at once over the head. Apply ice or ice-water, in which is a little alcohol, all over the crown of the head and temples. Put the patient in the coolest place to be found ; shut out the light ; fan him constantly. Give an ounce of whisky in some ice-water ; raise the head slightly. Send for the doctor.

SUPPRESSION OF URINE

This takes place when the kidneys do not secrete their proper amount of urine, and then the blood becomes poisoned, because those substances are contained in the blood which ought to be voided. There is thus an important difference between these cases and those of retention of urine, which arise from stricture or from paralysis of the bladder and which may be relieved by passing a catheter.

In cases of suppression the loins must be cupped and a sharp purge given. It often comes on at the end of old-standing kidney disease and hastens the termination of the illness. Care should be taken not to neglect this condition, since, if the kidneys continue to fail to do their work, uræmia may be set up. *See* URÆMIA.

SUPPURATION, GARGLE TO PROMOTE.

See GARGLES.

SUTURE

The seam or joint connecting and uniting the bones of the skull, whose edges are ragged and serrated like the teeth of a saw, the teeth of the edges of the bones fitting into and clasping one another in so close and intimate an embrace that it is difficult, if not impossible, to part them by force. To separate the bones of a skull without injury so as to exhibit the sutures perfectly, the cavity of the skull should be filled with dry peas and as much water as the cavity will hold after the introduction of the peas. The peas will then absorb the water and swell and in swelling they will, by the irresistible pressure exerted, accomplish that which no violence could bring about effectually.

SWEAT GLANDS

See SUDORIPAROUS GLANDS.

SWEATING POWDER

See POWDERS.

SYNCOPE

Syncope is a term indicating the failure of the heart, leading to a loss of consciousness, and sometimes to death. Among the principal causes are lack of blood in the cavities of the heart ; following on severe haemorrhage or sudden removal of pressure from the great blood vessels, as has occurred in certain operations ; insufficient supply of blood to the heart walls ; or a supply of impure blood, as may occur in certain fevers, or as a consequence of breathing the impure air of a crowded room ; and various diseases of the muscles and valves of the heart. Syncope may occur quite suddenly and cause instantaneous death, or it may be much milder in its symptoms and gradual in its onset. When it comes on gradually there is a sensation of faintness and giddiness with more or less nausea, or actual vomiting. The body usually becomes covered with cold clammy perspiration. The breathing becomes hurried and gasping; the mind becomes confused, and ultimately complete unconsciousness results. There is great pallor, and the pulse becomes almost imperceptible. The breathing is slow and irregular. The treatment consists in at once laying the patient flat on the floor or on a bed, with the head low. All clothing about the neck and chest should be loosened, fresh air should be freely admitted. The nostrils may be stimulated by the vapour of ammonia, and, if the patient is sufficiently conscious to swallow, one or two tablespoonfuls of brandy may be given him through the mouth.

SYCOSIS. *See* BARBER'S ITCH.

SYMPTOMATIC FEVER. *See* FEVER.

SYPHILIS

Syphilis is an infectious disease, always acquired by means of a poison which has come from some other person affected with it. It can never by any possibility develop anew of itself. Eruptions on the skin are frequently caused by syphilis, or venereal disease, although probably the real frequency of this dreadful disease is by no means indicated thereby, as many affected with it shun the observation even of regular physicians. The manifestations of constitutional syphilis are so varied and different in individual cases that no attempt can be made to open the subject clearly here, for only a perfect knowledge of the disease and long training can render its recognition possible in every case. The lesions, or appearances, which it produces on the skin may simulate almost every disease which affects that organ and frequently the diagnosis will prove very difficult. In regard to the treatment of syphilis, absolutely nothing can be said, for in no circumstances should the patient, even though he be a medical man, attempt to guide his own case. If well treated, and if the patient be able and willing to follow every necessary direction, there is comparatively little need for anxiety or distress in syphilitic patients and the more dreadful manifestations need not appear. It is above all things imperative that the person who has acquired the syphilitic taint should place himself in the hands of a doctor and avoid treatment by quacks, if he would avoid physical degeneration and financial robbery. If the disease runs to the secondary and tertiary stages, it is far too serious in every respect —having far-reaching consequences of which at the time the patient little dreams—for quack treatment. Every sufferer, therefore, is strongly urged to put aside all false delicacy and sense of shame and go frankly to the family doctor, or other duly qualified practitioner, for treatment. In his hands cure may be confidently relied on.

SYRINGING THE EAR

A few directions respecting this important manipulation may be given. The first injunction is never to use cold water in the syringe. A short, hard rubber syringe, such as can be obtained at many of our chemists' shops, is about the best kind for general use. This should move easily, without jerks. An ordinary finger-bowl may be employed not only to hold the warm water, but to catch the current as it returns from the ear. The patient can easily hold this vessel against his cheek during the syringing, unless it be an infant, when a large towel under the ear will catch the return current from the syringe. The syringer should take the auricle, at its upper-back edge, between two fingers, and draw it gently upwards and backwards, to straighten the cartilaginous part of the auditory canal and facilitate the entrance of the water. The nozzle of the syringe, held close to the ear, should then be directed backwards and forwards, to convey the water to the depth of the canal of the ear. Avoid injecting the water with undue force. A few drops of warm sweet oil will often cause any insect in the ear to crawl out; if not, it will smother it and the creature will float to the surface of the fluid and can then be easily removed from the ear.

TANNIN GARGLE

See GARGLES.

TAPEWORMS

The tapeworm is another parasite which not infrequently inhabits the stomach of man and gives rise to serious, dangerous, or possibly even fatal symptoms. It has a wonderful life-history and, after sundry transmigrations through the ox, pig, or sheep, enters the human system generally in consequence of the consumption of raw or underdone pork or beef. According to Pappenheim, the change of cooked meat from its red to brown colour, which is due to an alteration in the blood-corpuscles by heat, takes place at a temperature of about 150° F., and below this degree there is no certainty that the eggs or young of the tapeworm, or of the trichina are killed. Tapeworm sometimes makes its way into the human body in salad, celery, cucumbers, or other green vegetables eaten uncooked and without thorough preliminary washing.

TARTARIC ACID

In this we have the characteristic acid of grapes. It is a solid crystalline substance, which, like citric acid, is readily soluble in water. It is a less wholesome and pleasant acid than citric acid.

TARTAR ON TEETH

See HYGIENE OF THE MOUTH.

TEA

Tea consists of the leaves of several varieties of a small shrub found in China and India. The leaves are gathered in the fourth year of the growth of the plant, which is generally dug up and renewed in its tenth or twelfth year. The leaves are cropped with care by gatherers, who wear gloves, wash frequently and avoid eating things likely to affect the breath. The differences between teas result from the varieties of soil and growth and also from the mode of curing and drying the leaves. Black tea consists of leaves slightly fermented, washed and twisted. Genuine green tea is made of exactly the same leaves, washed and twisted without fermentation; but commercial "green" teas are often black teas coloured with Prussian blue. The chief action of tea depends firstly on its volatile oil (less in old than in new tea), which is narcotic and intoxicating; and secondly, on a peculiar crystalline principle called theine. Theine excites the brain to increased activity; but soothes the vascular system by preventing rapid change or waste in the fleshy parts of the body and so economizes food. Four grains of theine, contained in half an ounce of tea, act in this way ; but if one ounce of tea, containing eight grains of theine, be taken in a day by one person, then tremblings, irritation of temper and wandering thoughts ensue. When the system is thus saturated with theine, it is useful to resort to cocoa as a substitute for a few days, when the symptoms subside and the use of tea can be renewed ; but it is inadvisable ever to take it in such quantities as to occasion such symptoms. Tea contains also a quantity of tannic acid, which, being an astringent, is useful as a gargle in sore throat and as an injection in some cases. By chemical analysis one hundred parts of good tea contain—

Water	5·0
Theine	3·0
Casein or cheese	15·0
Aromatic oil	0·75
Gum	18·0
Fat	4·0
Sugar	3·0
Tannic acid	26·25
Fibre	20·0
Mineral	5·0

Or,—

Water	5·0
Flesh-formers	18·0
Heat-givers	72·0
Mineral matter	5·0

In an ordinary solution of tea the flesh-formers remain with the leaves, but may be taken up by soda in the water. Hence the practice of the poor of adding soda to the water, when making tea, extracts much of its nutritive properties. Tea exhilarates without in any sensible degree intoxicating. The brain is excited by it and increased activity and wakefulness are produced. Hence arises its usefulness to hard students, to all who burn the midnight oil and labour much with the brain. It soothes, on the other hand, and stills the vascular system and thus we find it very serviceable in inflammatory diseases and as a cure for headache. When green tea is taken strong, it acts with considerable power on some constitutions, producing nervous trembling and other alarming symptoms, acting as a narcotic, and in the case of some of the inferior animals even occasioning paralysis. Its exciting effect upon the nerves makes it of considerable use in counteracting the effects of opium and of fermented liquors and the stupor sometimes induced by fever. Tea is woman's great beverage, since, by its mildness and its peculiar nature, it is the best of all adapted for her fine organization. It is used to excess by women more than any other of the stimulants and much more than by men. It is for woman what tobacco is for man. It is her solace and her strength. It makes ordinary food more palatable and aids in its digestion and frequently supplies its place. When the appetite is deadened through grief or disease, when the organs of assimilation have lost their vigour through long abstinence or repeated irregularities attendant on the cares of raising a family, tea gratefully sustains the failing energies and this, too, with the least possible tax on the organs of digestion.

TEARS, COMPOSITION OF

The principal element, the prime ingredient, so to say, of a tear, is water ; this water, upon dissolution, contains a few hundredth parts of the substance called mucus and a small portion of salt, soda, phosphate of lime and phosphate of soda. It is the salt and the soda that give to tears that peculiar savour which earned for tears the poets' epithets of "salt" and "bitter": "salt" is, however, the more correct term. When a tear dries, the water evaporates and leaves behind it a deposit of the saline ingredients; these amalgamate and, as seen through the microscope, array themselves in long crossed lines, which look like diminutive fish-bones.

TEARS, SECRETION OF

See Lacrymal Gland.

TEARS, UTILITY OF

The utility of tears to animals in general and in particular to those which are exposed much to the dust, such as birds which live amidst the winds, is easy to understand; for the eye would soon be dirtied and blocked up, like an uncleaned window-pane, had not Nature provided this friendly ever-flowing stream to wash and refresh it. A very little fluid is necessary to keep the eye always clear and clean; but here again we must admire the wonderful mechanism which works the human body, for it is to be observed that when, through some accident or hurt, the eyeball has need of more water than usual to cleanse it, Nature at once turns on a more abundant supply of tears. Thus, for instance, when a grain of dust or an insect creeps into the eye, the eyelids at once fill and run over with tears and these not only alleviate the pain, but also, when the object is small enough, carry it away. The same thing occurs when smoke, too vivid light, or too intense cold obscures the sight—tears at once come to our relief and protect the eyes from harm.

TEETH, THE

The teeth in man are hard, bone-like structures implanted in sockets along the jaws and are intended to fulfil various useful purposes. Two sets of teeth are developed in the human mouth—the first called the deciduous, temporary, or milk teeth; the second, the permanent set.

TEETH, ARRANGEMENT OF THE

The teeth in man are arranged in close contact, without intervening spaces, affording each other mutual support after the manner of staves in a barrel. Being set without interspaces on a curved line, it follows that their outer surfaces are wider than their inner. The upper arch is larger than the lower and from this fact the incisors and cuspids of the upper jaw, when the mouth is closed, overhang or shut in front of the lower teeth. The upper central incisors are broader than the lower, thus causing the teeth on either side of them to be thrown out of exact correspondence with those of the lower jaw occupying the same relative positions. This brings about an irregularity of opposition, so that each tooth, instead of being antagonized by a single tooth, is met by portions of the surfaces of two teeth. Farther back in the arch the difference is harmonized by an increase in the size of the molars of the lower jaw beyond that of the upper, which brings the arches out even. The irregularity of opposition of the upper and lower sets is a valuable feature, since, when a tooth is lost from the arch in either jaw, the opposing tooth is not rendered useless, as it would be if the teeth were in perfect opposition with one another, because it is brought at least partially into contact, during mastication, with the tooth which adjoins the missing one.

TEETH, ARTIFICIAL

When the natural teeth have been lost, the deficiency should be supplied by substitutes and the personal appearance, comfort and health will be promoted thereby, provided that the substitution is skilfully and artistically performed. Those who have parted with some of their teeth are inclined to set a higher value on those which remain; and supplying the place of the missing ones is often the best means of preserving the rest—preventing their elongation and irregularity. When the molars and bicuspids have been removed, the front teeth are apt to project, presenting an unsightly appearance. This may, to a great extent, be prevented by supplying artificial masticating surfaces. There are various bases for artificial dentures—gold, platinum, porcelain, silver, rubber, celluloid, etc. Which of these materials is the best in a given case depends upon a variety of circumstances—the extent and character of the loss to be supplied, the age and physical characteristics of the patient, the condition of the mouth, the special qualifications of the dentist and the length of the patient's purse. No one of the bases named is always the best ; each of them has peculiar fitness for special cases. No authoritative opinion governing all cases can, therefore, be given. As a general rule, however, it may be affirmed that a gold base has more advantages and fewer disadvantages, certainly for partial sets, than any other material. The most important office of artificial teeth, as well as of natural ones, is the mastication of food. The proper performance of this function is indeed essential and frequently the skill of the dentist is rewarded by a restoration to health of those whose imperfect mastication previous to the insertion of artificial teeth had entailed upon them all the evils of indigestion. The sense of fatigue in the jaws and muscles of the face, caused by inability to close the mouth properly, in the absence of opposing or occluding teeth, is also overcome by the skilful substitution of artificial teeth. The enunciation is likewise improved, in many cases being made as perfect as before. Sometimes in the case of elderly people who have lost their teeth, there is a modification of the lower jaw, which causes it to interfere with the auditory apparatus in such a manner as to produce partial or absolute deafness, which the insertion of a properly-constructed denture promptly relieves. Another advantage gained by the wearing of artificial teeth is that they act as a dam in preventing the sudden emptying of the mouth in speaking. The modification of the features, caused by the removal of the supports of the lips and cheeks is, of course, changed by the insertion of artificial teeth ; but whether the change is an improvement, or otherwise, depends upon the artistic perceptions of the dentist. But important as are the æsthetics of substitution, use and comfort are mainly to be considered. An artificial denture must be properly constructed and skilfully adapted, or it will be worse than useless. Badly-fitting plates cause serious affections not only of the soft tissues of the mouth, but frequently of the hard palate and of the jaws. However correct artificial teeth may be in their æsthetic relations—however comfortable and useful,—let no one be beguiled into a willing sacrifice of the natural teeth for the sake of the greater comeliness of substitutes, or because the latter cannot ache. The best set of artificial teeth that ever was made is so far inferior to an average natural denture that the two can only be contrasted, not compared.

TEETH, DECAY OF THE

Decay of the teeth, or caries, is an affection which is almost universal. It may be defined as a disintegration of the tooth structure, affecting the enamel, the dentine and sometimes, though rarely, the cementine. It always begins on the exterior of the tooth and is chiefly dependent upon external influences, though it may be modified by constitutional conditions. The causes of decay are predisposing and exciting. The predisposing causes are imperfect structure, irregularity of position and mechanical injuries. Conditions inherent in the teeth by virtue of their original structure, determined before birth, or during infancy, establish in many cases a predisposition to decay. Irregularities of position, from whatever cause, render the teeth liable to decay. Mechanical injuries—falls, blows and improper use of the teeth, destroying the continuity of the enamel—also predispose to decay. The exciting causes of decay are chiefly different forms of chemical action, which may either follow from the use of acids as food or medicine, or be caused by improper tooth-powders or washes ; or may result from a vitiation of the secretions of the mouth, either from a general systemic derangement, or from a local cause, such as mumps, sore throat, or the presence of tartar about the necks of the teeth, causing an irritation of the gums and inducing an acid secretion ; or from the fermentation or decomposition of food between the teeth. The last-named is beyond question the chief cause of caries. Decay never begins on the smooth surfaces of teeth—those which are exposed to the friction of mastication,—but always begins at points which, owing to their structure or to their arrangement, furnish convenient receptacles for decay-producing agents. The character of the disintegration to which the teeth are liable differs, as does their original formation, in different persons, the decay being dark, white, dry, moist, horny, soft, chalky, or cartilaginous, according to the quality of the original structures and the strength and activity of the solvent ; also somewhat according to the systemic conditions of the person. The teeth are a part and an exquisitely organized part of the animal economy. They must therefore be more or less influenced by the state of the general health. They are liable to considerable modification of their texture by varying constitutional conditions, becoming softer at times and therefore more liable to be injuriously affected by decay-producing agents. Moreover, morbid secretions of the mouth in deranged systemic conditions tend markedly to the production of caries. Slight irritation of the mucous membrane, such as is caused by the presence of tartar which has insinuated itself between the gums and the necks of the teeth, will provoke a mucous secretion decidedly acid and as decidedly destructive to tooth-structure. Derangements of the alimentary canal are generally accompanied by acidity of the saliva. During pregnancy, the saliva is generally acid in character, which fact, in addition to the softened condition of the teeth themselves, accounts for the rapid decay which is apt to take place at such times. In all acute inflammatory diseases and in all chronic affections of the digestive tract, there is increased viscidity of the mucous secretions of the mouth, with a marked diminution of the saliva, tending to the production of caries. In dyspeptic troubles there is generally an acid condition of the digestive fluids which are regurgitated from the stomach to the mouth and act directly upon the lime of the teeth. In addition to the acids, resulting from derangements of the stomach and alimentary tract, or from the mucous and salivary glands, or from the fermentation or decomposition of food about the teeth, there is another agent which is supposed to play an important part in the extension of caries, namely, a vegetable parasite—a fungus—found in the interstices, furrows and depressions of neglected teeth, but most abundantly in cavities of decay. It is not claimed that this fungus originates decay, but that it becomes an active agent in the destructive process when once a loss of substance has been caused in the enamel—its filaments penetrating the minute chinks, excavations and orifices caused by disintegration and opening the way for the entrance of chemically destructive agents. The development of this fungus seems to be favoured by an acid condition of the mouth. Treatment, therefore, which corrects the acidity lessens the danger. Antacid washes, especially washes or powders containing soap, hinder the development of the parasitic vegetation. Whatever may be said of the deleterious effects of tobacco upon the general system, it has not been proved to have any influence in the production of caries, although the discoloration which results from its continued use detracts markedly from the appearance of the teeth. In this connexion it may be mentioned that the use of a clay pipe produces a rapid abrasion of the teeth between which it is held, and that short pipes are charged with the development of cancerous affections of the tongue and lips. Sugar and confections exercise no directly injurious effects upon the teeth, but when taken in excess do produce an acid condition of the stomach unfavourable to the health of the mouth and, when left in the interstices of the teeth, rapidly undergo an acid formation, resulting in a product capable of acting very injuriously upon tooth-structure. Particles of candy remaining between the teeth, will in a single night produce demonstrable mischief. The progress of decay of the teeth is as varied in different persons and at different times as is the character of disintegration. It proceeds sometimes insidiously and slowly, and again with wonderful rapidity, sometimes announcing its ravages by a sensitiveness of the exposed dentine to sweets and acids and to changes of temperature, and at other times giving no notice of its presence until a complete exposure of the pulp has been made.

TEETH, EXTRACTION OF

It should be remembered that a tooth which has ached once will be likely to ache again and an endeavour should be made to prevent a second attack in the same tooth by securing professional advice. It is seldom that the extraction of a tooth becomes a necessity. Thousands of teeth are sacrificed through impatience, the result of the pain which ought to have been avoided by timely attention and which might have been alleviated and the teeth preserved. The facility afforded for the painless extraction of teeth by the use of nitrous oxide gas, leads to the needless, wanton, wicked sacrifice of useful organs—to losses which can never be made good. The willingness of many persons to part with valuable teeth rather than take a little trouble and incur a small expense for their preservation, is an evidence of ignorance and of a readiness to submit to mutilation of the mouth as remarkable as it is general. There is urgent need of a popular awakening to the fact that wilful neglect of the health of any portion of the body is criminal ; that such neglect differs only in degree from suicide. The preservation of the integrity of the physical organism and of the vital forces, and the restoration of diseased or wounded members, whenever possible, may be said to be the leading principle alike of surgery, of medicine and of dentistry. It should be the ambition of every person to retain as long as possible each organ and faculty of body and of mind. But when it becomes desirable as a choice of evils to sacrifice a tooth, it is weakness and folly to allow it to remain through dread of the brief pain accompanying extraction. If its room is better than its company and its displacement is demanded for conservative reasons, the sooner it is removed the better, both for the health of its neighbours and for the comfort of its owner.

TEETH, IRREGULARITIES OF THE

The value of the teeth, not only for ornamentation and vocalization, but also for mastication, depends very much upon their regular position in the arches of the jaws and their perfect occlusion. In a faultless denture, the upper and lower teeth come together in such a manner that the elevations and depressions upon the opposing surfaces fit into each other so as to produce the most effective results in mastication. When from any cause this perfect occlusion is prevented, their usefulness is more or less impaired. The irregularity may be limited to a false position of one or more teeth, may involve the entire denture, or may be the result of some extrinsic cause, or of an incongruity of size between the teeth and the jaws. A single tooth is sometimes twisted upon its axis, overlaps the adjoining tooth, or erupts inside or outside of the arch. The latter occurrence—a frequent one with the canines—is generally a source of great annoyance, interfering seriously with the symmetry of the face. Sometimes the upper front teeth shut edge to edge against the lower, instead of overlapping them, causing a rapid wearing away of the edges of both. In other instances the upper teeth shut so far outside of the lower ones that they rest upon the lower lip ; or they protrude so that the upper lip fails to cover them. Another variety of irregularity is that in which the teeth of the lower jaw close in front of the upper teeth—an inversion of order which in the dog is known by the name of "underhung." Another, but rarer form of irregularity is that in which the molars alone come in contact when the mouth is closed, causing the front teeth to stand apart.

TEETH, IRREGULARITIES OF THE, CAUSES OF THE

Irregularities of the teeth proceed from a variety of causes among which may be mentioned mechanical injuries, such as blows on the mouth ; the pressure of supernumerary or extra teeth ; a steady pressure such as is kept up during the habit of sucking the thumb, tongue, or lip during childhood; a too early extraction of some of the temporary teeth, especially of the molars and canines ; a wrong direction given to one or more teeth by a mechanical impediment, such as the retention in the mouth of temporary teeth, or even roots of temporary teeth, after the time when they should be removed ; hereditary transmission of dental peculiarities ; the incongruous association of large with small jaws—a mixing without blending of differing parental characteristics—and so on. Children with enlarged tonsils are liable to an irregular disposition of the teeth as a result of the habitually open mouth, caused by the difficulty of breathing through the nose. Deformity in the shape of a protrusion of the front teeth of the upper jaw sometimes results from the habit of thumb-sucking. A similar protrusion of the teeth of the lower jaw is produced by the habit of sucking the first and second fingers, the weight of the hand and arm gradually forcing the teeth out of position. In many instances children are allowed to retain the bottle from which they are nursed, or are supplied with a teat, or are permitted to suck the thumb or fingers, because of the quieting effect which this occupation seems to produce. The resulting deformity of the jaws and the consequent irregularity of the teeth (crowding, overlapping, or protruding), produce disfiguration and cause disabilities and discomforts which remain throughout life. It is much easier to prevent these habits, or to break them up in their incipiency, than after they have been fully formed, although in some cases the sucking instincts of the child make their prevention or early correction no easy task to the anxious parent. Chief in importance in the list of causes of irregularity is defective growth of the jaws during the development of the permanent teeth. In a perfectly healthy person, the teeth and jaw would develop harmoniously ; but it is quite possible for one or the other, or both, to suffer in development, according to the character of the destroying influence. It is, we must repeat, much easier to avoid decided irregularities of the teeth by attention at the proper time than to correct them at a later period. The nutritive functions are more vigorous and the processes of absorption and reconstruction more active in early life than subsequently. If, therefore, changes of position of one or more teeth are necessary to the correction of an irregularity, an easy adjustment is possible in childhood, which a few years later would be tedious, difficult and uncertain. One of the reasons for interference at an early period, when a tendency to irregularity is to be combated, is because of the fact that false positions of the teeth are made difficult of correction when those of the opposite jaw in closing prevent them from assuming their correct relation to the arch of the jaw. The causes and forms of irregularity are so numerous and various that no rules can be laid down for treatment. The natural expansion of the jaw up to a certain period, the extent of the irregularity, the character and condition of the teeth, the age of the patient and various other considerations will determine the judgment of the dentist. Under the care of a competent adviser, the prevention or correction of most forms of irregularity is neither difficult nor problematical, if the proper effort be made in time.

TEETH, NERVOUS RELATIONS OF THE

General systemic disturbances, resulting from diseased dental organs, might be considered as impossible, were it not for the instances with which every dental practitioner is familiar, in which debility, sleeplessness, nervous derangements, mental depression, palpitation, etc., after resisting constitutional medication, have yielded promptly to such treatment as was found necessary to restore a healthy condition of the mouth. Many and varied are the disturbances radiated or reflected to other organs, or dependent upon constitutional irritation from dental affections ; the inharmonics thus set up may range from the mere sense of discomfort up to (and including) the gravest and most formidable derangements, involving even life itself. But the sympathetic or reflex disturbances of harmony caused by dental irritation are not more interesting or more instructive than are the converse manifestations of pain or discomfort experienced in the teeth, but originating elsewhere. A curious and familiar illustration is found in the effect produced on many, if not most, people through an irritation of the auditory nerves by discordant or peculiar sounds, such as those produced by the sharpening of a saw, the cutting of cork, etc., which "set the teeth on edge." Similar effects are produced on impressionable organizations by the contact of the hand or fingers with certain substances. Many persons have their teeth set on edge by touching velvet. Even those who have lost their natural teeth and wear artificial ones assert that discordant sounds, as well as the taste, even the smell, or sometimes merely the mention of some fruits or drinks, will cause their teeth to feel on edge, just as those who have lost a limb by amputation complain that they still suffer at times from itching, pain, or uncomfortable sensations as if the member were not missing. Many of the instances of painful affections of the fifth nerve are well-marked examples of reflected sensations, the primary irritation being in the stomach or intestinal canal. The pain over the eyes, which is so commonly associated with derangement of digestion and which may frequently at once be relieved by correcting the acidity of the stomach, is a familiar instance. The condition properly known as "biliousness" sometimes reveals itself by a peculiar discomfort produced in the talk, which, variously described, may be summed up under the general phrase, "exalted sensibility." An attack of dyspepsia is by many more quickly recognized through disagreeable sensations in the teeth than by any special stomach disturbance. In sea-sickness and in sick-headache the nausea is sometimes preceded by intense neuralgia in the teeth and jaws, promptly disappearing if vomiting be induced. In some people hunger will excite markedly disagreeable sensations in the teeth. The singular affection known as "brow ague," or malarial neuralgia—which by yielding to quinine reveals its malarial origin—is frequently alternated, or is associated with periodical pain in perfectly sound teeth. Neuralgia (nerve pain) furnishes various illustrations of reflex or radiated pain, the cause being in a nerve-centre in the brain, in the trunk of a nerve or its extremity, or, by exchange of communication, in the sympathetic nervous system.

Thus, neuralgia originating in a diseased tooth may express itself in the face, scalp, eyes, or ears, or in more remote parts ; while by the same method of radiation or reflection, reversed, neuralgia having a general or constitutional cause, as malaria, or local cause in the stomach or elsewhere, may manifest itself in one or more teeth. There is a form of toothache, not inappropriately termed "hysteric toothache," which seems to depend upon emotional rather than physical excitants and is more amenable to mental impressions than to local or general medication. Rheumatism sometimes produces agonizing pain in the jaws and, either by direct influence, or the sympathy of contiguity, or radiation, may so powerfully affect a particular tooth that the patient can hardly be persuaded that instant and complete relief would not follow its extraction. It is apparent, therefore, that many severe, remote and reflex derangements may be associated with and be dependent upon affections of the teeth. It is a sad mistake for the dentist, or the doctor, or the patient to consider the teeth as mere mechanical organs requiring only mechanical treatment, and therefore to ignore their nervous relations to the entire organism. There are twelve pairs of nerves originating in the brain and thirty-one in the spine. The fifth nerve, having its origin in the brain, is the largest of the cranial nerves. Its functions are various. It is the great sensitive nerve of the head and face, the nerve of the special sense of taste, the nutrient nerve of the teeth and the motor nerve of the muscles of mastication. It is called the "trifacial," because it is divided into three main branches, known as the "ophthalmic," the "superior maxillary" and the "inferior maxillary." These main divisions again subdivide and give off branches to the eye and eyelids, the nose, the ears, the forehead, the scalp, the upper and lower lips, the chin, the gums, the tongue and the teeth of the upper and lower jaws ; filaments of the maxillary branches again join the ophthalmic branch and the seventh nerve—the nerve to the muscles of the face. The fifth nerve is very remarkable on account of its frequent communication with the sympathetic nervous system, as well as its numerous ganglia and its varied functions. It is this nerve which is specially affected during the eruption of the teeth, whether of the milk or permanent set. It is the irritation of this nerve during dentition which causes convulsions in children. It is this nerve which is the seat of facial neuralgia. It is the relation which this nerve bears to the head and face which is the cause of the various "sympathetic" affections of the eye, ear, etc., so commonly associated with dental disorders.

TEETH, PERMANENT

The permanent set of teeth consists of thirty-two—sixteen in each jaw. Those in the upper jaw are called the superior ; those in the lower, the inferior. They are divided into four classes, namely, incisors, cuspids, bicuspids and molars. The incisors—four in each jaw—are so named from the Latin word *incidere* ("to cut "),on account of their sharp edges. The second class comprises four teeth—two in each jaw—called cuspids or *cuspidati* (singular, *cuspidatus*) from the Latin word *cuspis* ("a spear "), because they terminate in a point.

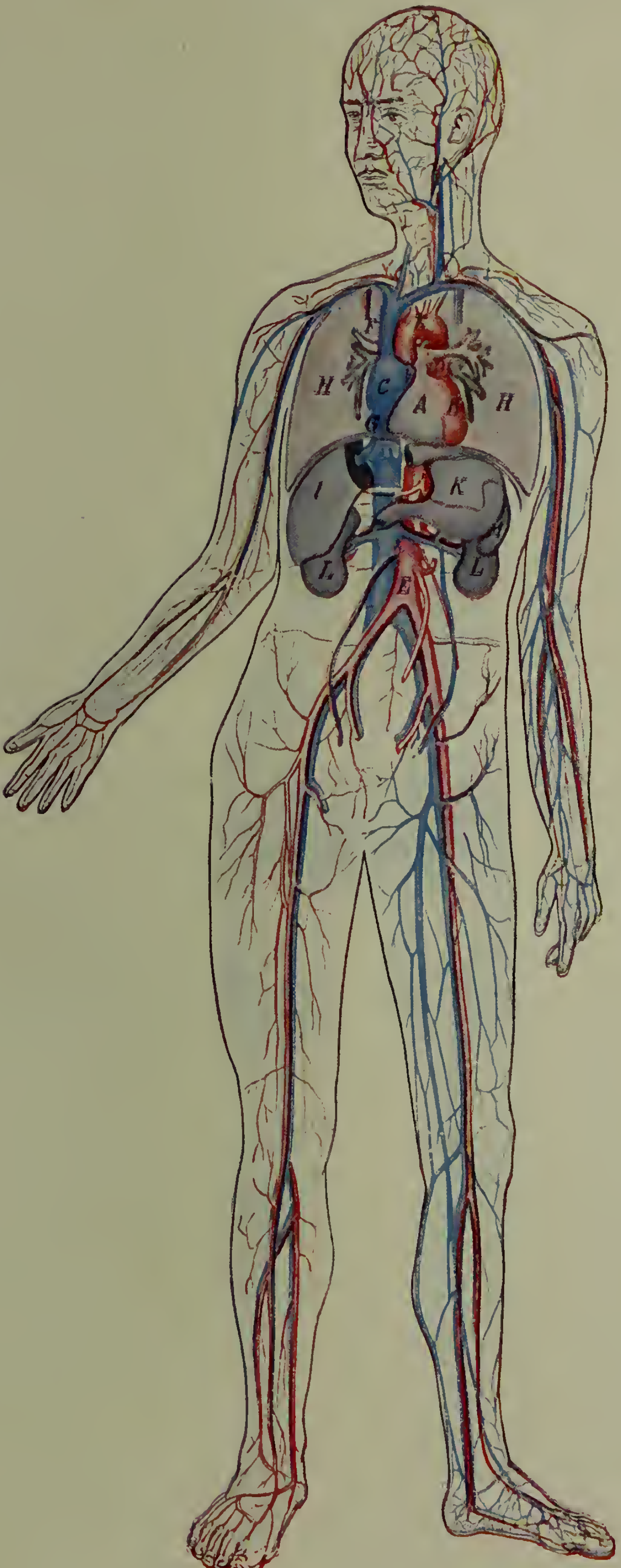
They are commonly known by the name of canines (dog teeth), or those of the upper jaw as eye-teeth and those of the lower jaw as stomach-teeth. They are situated on the outer side of each lateral incisor. The third class comprises eight teeth—four in each jaw—called bicuspids or *bicuspidati* (singular, *bicuspidatus*), from the Latin words *bis* (" twice ") and *cuspis* (" a spear ")—double-pointed. They are situated immediately behind the cuspids, holding an intermediate relation to them and the molars and are known as the first and second bicuspids. The fourth class consists of twelve teeth —six in each jaw. They are called, molars—Latin *molares* (singular, *molaris*)—from *molere* (" to grind, as in a mill "). They are situated at the back of the bicuspids and are known as the first, second and third molars. The first, because of the time of their eruption, are called the sixth-year molars ; the second, for a similar reason, are known as the twelfth-year molars ; and the third, for a like reason, are denominated the wisdom teeth, because they are not cut until the person has reached maturity.

TEETH, REPARATIVE TREATMENT OF

The first effort in the treatment of caries should be directed to the predisposing and exciting causes, constitutional and local. The object of treatment is the arrest of the destructive action and the repair of the damage, in the manner best calculated to preserve the tooth or teeth in a serviceable condition and to protect them against a recurrence or continuance of the decay. It is, of course, desirable that the treatment should be begun as soon as possible after signs of caries occur and before any considerable progress in the disintegration of the tooth structure has been made. Very often a small orifice leads to an unexpectedly large interior cavity and, when the dentist is consulted, the preservation of the tooth is almost if not quite impossible. Sometimes a tendency to disintegration is manifested in all the teeth, showing systemic derangement ; sometimes it is limited to a pair of teeth, showing that constitutional conditions at the time of their formation have resulted in an imperfect texture and, consequently, in a lessened capability of resisting the action of destructive agents ; sometimes it is confined to a single tooth, in which case the explanation is probably to be found in its relations to the adjoining teeth. When, owing to the character and progress of decay and its appearance about the same time in teeth formed at different periods, there is reason to believe that it is an expression of constitutional disturbance, such methodical treatment should be adopted as will promote a healthy condition of the secretions of the mouth and of the soft tissues about the teeth. All deposits and accumulations of whatever character about the teeth should be carefully and thoroughly removed and such local correctives employed as may be indicated, conjoined with the utmost care as to constant cleanliness. Any mere mechanical teatment of carious teeth which ignores their original organization, their special condition and the temperament, age and constitutional condition of the patient, is not likely to be successful. These are considerations which must always enter into the calculation in reference to methods of treatment. There is no greater folly than to demand the

CIRCULATION OF BLOOD IN THE BODY.

(ARTERIES, RED; VEINS, BLUE.)



A, Right Auricle. *B*, Left Auricle. *C*, Right Ventricle. *D*, Left Ventricle. E, Aorta. *F*, Vena Cava Superior. *G*, Vena Cava Inferior. H, Lungs. I, Liver. *K*, Stomach. *L*, Kidneys. *M*, Spleen.

following of stated formulæ, prescribed manipulations and an unvarying routine for every operation, without regard to varieties of structure and character of decay. Whether to fill or file, with what and how much, must be determined by the dentist, chiefly by the peculiarities of each case. Until the influence of such considerations is better understood by the community, unjust prejudices and conclusions will prevail. The relative cost of different materials and methods must also be considered, though the most costly operations are by no means always the best, so far as the salvation of the teeth is concerned. Gold is generally considered the best material for permanent fillings—those intended to be lasting ; though in many cases it is admitted that other materials are to be preferred. There are, however, many preparations of gold, having distinct and different qualities, and many methods of manipulating them ; so that there are more differences even in gold fillings than would be conceived by those not familiar with the subject. Amalgam, gutta-percha and various other plastic fillings have undoubted claims to consideration in many cases. The same is true of tinfoil. But patients are not ordinarily qualified to judge of the relative merits of the various materials and methods, nor of their special applicability in particular cases, and cannot do better than select an earnest, conscientious, intelligent dentist and submit to his judgment and, having done so, give him all the help in their power to secure the best results. Good operations, of any and all classes, fail often because of a want of cleanliness on the part of the patient. If the teeth decay because of unhealthy conditions of the mouth, produced either by constitutional causes or by want of cleanliness, a continuance of the same influences will produce like results after the most thorough and most conservative treatment according to any system. A tooth that has been filled, or filed, is not therefore to be supposed invulnerable to the attacks of destructive agents and the dentist should not be held responsible for the patient's neglect. As a sick man requires more care than a whole one, so a damaged tooth, even though repaired, needs more attention than a sound one.

TEETH, TEMPORARY, REMOVAL OF

It is a mistake to suppose that the temporary or milk teeth may be extracted at any time without injury. The domestic dentistry which watches for the first evidence of their loosening, in order that they may be promptly removed, is generally mischievous. Another mistaken notion is that the temporary teeth were intended to be lost by decay and in this manner to make room for their successors. Under favourable conditions they ought not to decay at all ; but after they have fulfilled their missions, they should drop out as white and clean as when they first appeared. If allowed to decay, the air pulps become exposed, giving rise to pain, leading generally to extraction of the teeth ; or if the pulp die because of the exposure, gumboils form and interfere with mastication. Moreover, when the pulp of a temporary tooth dies, absorption of the roots is arrested and the tooth remains to cause soreness, inflammation and suppuration, sometimes to be a mechanical obstacle to the advance of the succeeding tooth, which, as a result, may assume a position inside or outside, instead of in the line of the arch. Though the premature loss of the temporary teeth is, as a rule, to be deplored, there are cases in which the extraction of one or more of them at an opportune time will save much trouble in securing a regular alignment of the permanent set. The exemption of children from the suffering caused by dental decay and the immunity of the parent from the consequent inconvenience will be best secured by constant attention to the teeth from their first appearance. The general health of the child will also be promoted by keeping the teeth in such a condition that mastication can be performed without pain : otherwise the child will soon learn to avoid that which is troublesome or painful and, by swallowing its food without proper mastication, will bring upon itself all the evils of indigestion. In infancy the mother should make it a part of her daily care to secure perfect cleanliness of her child's teeth. Becoming then accustomed to it, the child, when old enough to rinse the mouth properly or to use the brush, will find it impossible to feel comfortable after a meal until the teeth have been cleansed ; the habit thus early formed is almost sure to be continued throughout life. Small, soft tooth-brushes and pleasant dentifrices are manufactured exactly suitable for children's use. In cases where, in spite of all the care given them, the temporary teeth show signs of decay, equal or even greater care than would be given to the permanent teeth under similar conditions should be taken to prevent its extension and cavities of decay, particularly in the molars, should be filled with some one of the various preparations at the disposal of dentists. A good rule is to have a dentist examine the mouth of the child, after it is two and a half years old, at least twice a year or oftener if necessary.

TEETHING OR DENTITION, DIFFICULT

It is a well-known fact that the period of dentition is the time of greatest mortality among children. It is true that during the same period other and more important changes are taking place in the organization of the child, especially in the stomach and intestinal tract, which are intended to prepare them to receive and digest solid food—changes which may be said to be concordant with the development of the masticatory apparatus. Doubtless these concurrent changes exercise their full share in producing constitutional disturbances at this epoch. This, however, makes it only more imperative that the child should have even more than usual hygienic care and freedom from all avoidable disturbing influences ; for whatever tends, by modifying the general health unfavourably, to lower the resisting power of the organism, may readily convert the natural and otherwise easy course of dentition into one of pain and danger. There is certainly during the period of dentition an increased susceptibility to nervous and digestive troubles, requiring more than ordinary watchfulness of the child on the part of the mother. Causes which at other times have no appreciable effect may then be fraught with danger. Exposure to cold, an attack of indigestion—anything that introduces want of harmony into the functions of animal life—may result in a disturbance of the process of digestion. Difficult dentition may, therefore, be charged with causing or aggravating various disorders ; as these, on the other hand, may be reasonably suspected of interfering with the natural cutting of the teeth. It is certainly unsafe to ignore the complications possibly due to dentition, if any derangement of the health of the child occur during the period of teething. As a rule, the amount of irritation holds a relation to the number of teeth advancing simultaneously; but owing to the varying susceptibility of children, a single tooth may cause more disturbance in one case than half a dozen will in another. At the beginning of the cutting of the teeth there is generally an increased flow of saliva which keeps the mouth moist and cool. When the irritation increases and the mouth becomes hot and dry, other derangements are likely to follow : the child becomes feverish ; constipation or diarrhœa ensues—the latter, if not too severe or too protracted, being beneficial, however, rather than hurtful, but requiring, nevertheless, great care lest it become a source of danger. An unusual redness of one or both cheeks, sometimes changing from one to the other, is a frequent symptom of nervous disturbance. Eruptions are apt to appear, usually on the cheeks, but sometimes on the head, or even over the whole body, and ulcerations of the tongue, gums, lips, or on the inside of the cheeks are not infrequent. Itching of the nose, twitching of the muscles, dilatation of the pupils, uneasiness and fretfulness, restless sleep or wakefulness, thirst and loss of appetite are evidences of increasing irritation, which, if not relieved, will be followed by more active manifestations. The child becomes cross, resentful, moans when asleep, cries persistently when awake ; or if quiet for an instant will be found chewing its thumb or fingers, which operation seems to afford a momentary cessation of angish—but only momentary. It throws down its toys as though in a passion, refuses to be amused, resents all effort to divert it, compresses its lips, corrugates its brow, shows an intolerance of light, pulls at its hair or ears, slaps or scratches its nurse, refuses its food or vomits it as soon as swallowed. Further manifestations of increased constitutional disturbance are likely to appear in persistent and copious diarrhœa, nausea, high fever and, not infrequently, convulsions. There is reason to believe that earache is often associated with and dependent upon the difficult cutting of one or more teeth and that, apart from the aggravation of the fever and the increased liability to convulsions, incident to this added anguish, there is also the possibility of the loss of hearing (entailing in young children the loss of speech) from the congestion and inflammation which result. But this is not the only, indeed, not the chief danger : the inflammation is liable to extend to the membranes of the brain and may conceivably end in death. The usual indications in the mouth of the advancement of the teeth are increased heat, redness, swelling and hardness of the gum and, later, the peculiar whiteness caused by the pressure of the coming teeth. Sometimes the swelling takes the form of a little tumour, like a boil, on the edge of the gum ; in other cases an ulceration will form over the presenting tooth. In all such conditions the gums are very tender, so sensitive that the slightest touch will cause pain and the child, on attempting to take the breast, will jerk back its head—a manœuvre which is frequently mistaken as an evidence of colic. Sometimes, however, the irritation of dentition may produce the most serious constitutional derangements without any local manifestations. That such may be the case is apparent when the conditions of the parts concerned are understood. These troubles of dentition are caused to some extent, doubtless, by the direct pressure of the advancing teeth and the consequent irritation of the nerves of the gums ; but this is not the only, nor, is it believed, the principal factor in the disturbance. It must be borne in mind that at the time of cutting, the roots of the teeth are not yet complete : that, instead of the conical termination and minute opening which characterize the root of the perfected tooth, the aperture is quite large and its edges are thin and sharp. In estimating, therefore, the mischief which may result because of a lack of accordance between the cutting of a tooth and the absorption of the tissues which impede it, we may injure the sensitive nerve—which, when exposed to decay, is so intolerant of contact even with the atmospheric air—held between the bony socket and the sharp edge of the incomplete root by the backward pressure of two resisting gums, thus giving rise to a true toothache, comparable only to that exquisite torture which is experienced in after-life from an exposed and irritated pulp. It is not difficult to comprehend that a free division of the gum over the tooth or teeth thus situated may, by removal of the pressure, give immediate and complete relief. This simple operation of dividing the gum over the teeth which are next in the order of cutting is justified by local manifestations such as have been specified ; it is also suggested by the occurrence of the usual symptoms of difficult dentition, even when there does not exist a single local indication in the mouth. In such circumstances it is proper to give the child the benefit of the doubt by free incisions over the teeth whose cutting is to be anticipated—especially as the operation causes only a trifling amount of pain, inflicts no injury and is practically free from danger. The reasons for the methods of lancing which are considered to promise the best results are easy of comprehension. Premising that the object of lancing is not merely, nor chiefly, to induce a flow of blood, but to remove tension, it follows that the cuts should extend through the gums to the presenting surface and should be made with special reference to the form of the coming tooth. The incisors need only a division of the gums in the line of the arch. The molars require a crucial incision. In the case of either of the incisors, superior or inferior, owing to their straight edges, the slightest appearance of the tooth through the gum gives entire relief so far as that particular tooth is concerned. Not so, however, with the cuspids and molars. The cuspids, it must be remembered, have cone-shaped crowns and therefore, even after the cutting of the points, still keep up the pressure by reason of the enclosing ring of gum. A complete severance of this ring on the lateral surfaces, as well as on the anterior and posterior faces, is necessary to relieve the tension. So, all the cusps or points of a molar tooth may have cut, and yet bands of gum tissue around and between them maintain a resistance as decided as before their appearance, which is entirely overcome by the cuts. If, after lancing, the cuts should heal before the tooth is fairly through the gum, the operation should be repeated as often as is necessary. Sometimes, but not often, there is a little too much bleeding, generally caused by the child sucking the gums, incited thereto by the taste of the blood. In such case the substitution of the breast of the nurse will give the infant better employment. The extent of the bleeding can be ascertained by touching the wound occasionally with a napkin-covered finger and, when it continues longer than seems desirable, a little very finely powdered alum, rubbed into the incisions, almost entirely controls it. If this fail and the case require the attention of the doctor the trouble will still be quite amenable to treatment.

TEETHING, SECOND DENTITION

There is usually but little trouble attending the second dentition; but occasionally there are considerable pain and swelling and sometimes sore throat, difficulty in swallowing, earache and even severe constitutional disturbance. Various distressing and obscure nervous affections have been found to depend upon the cutting of a sixth- or twelfth-year molar. The third molars or wisdom teeth of the upper jaw are generally cut without special trouble, except that which is the result of their contact, by misdirection, with the cheek, causing ulceration. The cutting of the wisdom teeth of the lower jaw generally causes considerable inconvenience and suffering, owing to their being crowded between the second molar and the ramus (the upright portion) of the jaw. The space being insufficient, the gum is pressed between the distal (rear) surface of the tooth and the ramus; the irritation produces swelling and this is aggravated by the bruising of the gum in mastication or by the teeth of the upper jaw. Inflammation is thus set up, which extends to the soft tissues of the adjoining parts, making the act of swallowing difficult and painful and mastication impossible. Sometimes the inflammation results in suppuration, the pus finding exit at points more or less remote, internal or external. The trouble in such cases is generally of short duration and ceases upon the complete cutting of the tooth. Other cases require lancing of the gum, or the removal of the overlying portion of gum; sometimes even the extraction of the tooth or of the one in front of it. No general rule for the treatment of cases can be given. It will depend upon the space in the jaw and the cutting of the tooth in a natural or unnatural position; if the latter, upon the form of the deviation. The nervous susceptibility and constitutional condition of the patient must also be taken into account. The record of troubles caused by the cutting of a wisdom tooth into a crowded arch comprises ulceration and sloughing of the adjacent tissues, disordered vision, earache, deafness, headache, neuralgia, hysteria, St. Vitus's dance, epilepsy, lockjaw and various other serious disorders—some altogether exceptionally severe cases ending in death. At six, at twelve and at seventeen years of age, or until the wisdom teeth have been fully cut, it is well for patients suffering from eye or ear troubles, or from any deranged condition not otherwise accounted for, to seek the advice of a dentist, in order to learn whether or not an explanation is to be found in the state of the mouth.

Table of the Concordance of Temperature, Pulse and Respiration

Age	Temperature above the normal	Pulse	Respiration
At birth	1–·5	120–150	40–60
2nd to 3rd day	·2		
7th day	2–·6		
1st month	·5	120	40
1st year	·25	105–130	30–40
3rd year	·4	95–105	23–26
7th year	·21	80–90	22
15th year	·31	75–85	20
Adult (21st year)	0	70–75	16–18

TEMPERATURE, PULSE AND RESPIRATION

These are so intimately connected that anything affecting one is likely to affect the others. Pulse and respiration are, however, more readily disturbed and deviate more in sickness from the normal condition than does the temperature ; but the variations of the temperature express more correctly the condition of the patient. With children, sleep, anger, suckling, slight indigestion, etc., all cause alterations in the pulse and respiration, which are of no moment unless they continue and are accompanied with changes in the temperature, in which case a general trouble of the system is indicated. The same is true of adults, in whom, though, variation of any of the vital signs is more important than in children. Any considerable deviation from the averages shown in the accompanying table implies a disturbance of health for the time ; or, if constant, some constitutional difficulty.

TENDONS

Tendons are the strong inelastic cellular extensions by means of which the muscles are attached to the bones. The tendons are popularly known as " the guides " and one of the best known of them—best known by name, at least—is the tendon Achilles, which any one may feel in his own person. The Achilles tendon attaches the soleus and gastrocnemius muscles of the calf of the leg to the heel bone. Though capable of resisting a force equal to a thousand pounds' weight, it is frequently ruptured by the contraction of these muscles in the sudden extension of the foot. In the name of the tendon we have a reference to the death of the Grecian hero Achilles from a wound in the heel, the only part in which he was vulnerable. Ancient surgeons looked on wounds or serious bruises of the Achilles tendon as fatal.

TENDONS, USES OF

A great many of the muscles terminate at one or both ends in what is called tendon—sometimes constituting cords, as in the wrist and ankle,—which is a white, hard, firm, inelastic cellular substance, by means of which, as we have seen, the ends of the muscles are attached to the bones. In some instances the tendon of a muscle spreads out, or expands in its attachment, and then it is called fascia or aponeurosis. This fascia, or expansion of tendon, becomes quite thick in some places and serves as a protection to parts beneath, as in the palm of the hand and sole of the foot. These tendons, or sinews, as they are occasionally named, conduce greatly to symmetry, elegance and freedom of motion and may be traced under the skin on the back of the hand and in the very powerful specimen at the heel, called (as has been said) the tendon Achilles. The hamstrings are another obvious example and may be easily felt becoming tight when an effort is made to bend the knee. There are a few muscles not attached to bones at either extremity and also a few which have no tendons. Those which surround the eyebrows, the mouth, the gullet and some of the other natural passages are of the former description, as is also the heart. Some of the muscles of the trunk have no tendons, but these are few in number and may be considered exceptions to the general rule.

TERTIAN AGUE

See AGUE.

TETANUS

(Greek, **tetanos**, "stretching" or "stiffness"; from **teino**, "I stretch").

Tetanus is a violent and extensive contraction of the muscles, attended with tension and rigidity of the parts affected. The excessive contraction of the muscles is kept up, without any intervals of complete relaxation, mostly without any relaxation whatever; but the powers of sensation and intellect are unimpaired. Either the whole or a part of the body may be attacked with this malady. Sometimes only the flexor muscles are affected, when the body is rigidly bent forwards; sometimes only the extensor muscles, when it is as rigidly bent backwards; at other times, both sets of muscles are involved and the body is rigidly erect. Where its effects are confined to the muscles of the jaw or throat, it is called lockjaw.

TETANUS, CAUSES OF

The chief cause is the entrance of poison—due to the introduction or growth within the nervous structures of the body of a micro-organism, the bacillus tetani—into scratches, punctures, lacerations, or other mechanical injuries. Bruised and ragged wounds, particularly in the hands and feet, are the most liable to be affected. Considerable irritation in the digestive organs seems also sometimes to give rise to this disease. It is much more frequent in warm than in temperate climates and especially in the hot seasons of those climates. The male sex more frequently suffer than the female and the robust and vigorous more frequently than the weak.

TETANUS, SYMPTOMS OF

This disease differs greatly in different cases, in the intensity of its symptoms, or in the mode in which it makes its attack. Generally speaking, the onset of the disorder is announced by a sensation of stiffness about the neck, which, increasing, movement of the head becomes painful. There are difficulty and pain in swallowing; there is also a severe pain at the bottom of the breast-bone, darting backwards to the spine; the spasms of all the muscles of the neck become exceedingly violent and, together with the spasm at the pit of the stomach, recur every ten, fifteen, or twenty minutes. At the same time that the spasms increase, the retraction and rigidity of the muscles affected grow stronger; the belly feels as hard and tense as a board; and the body is drawn forwards, backwards, or to one side, according to the muscles chiefly affected. In the extreme period of the disease, one set of muscles contracts so powerfully as to counterbalance the force of the opposite set and holds the head and trunk in a straight, fixed and immovable position. The muscular contractions in tetanus are always accompanied with the most excruciating pain and, when the disease arrives at its height, a violent convulsion usually puts an end to the patient's misery.

TETANUS, TREATMENT OF

No continued success has yet attended the administration of any one of the numerous medicinal agents that have been tried in cases of severe tetanus—calomel, opium, chloroform, belladonna, aconite, quinine, Calabar beans and Indian hemp have all been extensively used ; in some cases with good results, in others with signal failure. No drug is yet known which has the power of arresting the course of the disease and of controlling its severer symptoms. So long as tetanus is to be regarded as a disease which must run a certain course, the chief indications of treatment will be the support of the patient's strength and the relief of suffering and pain. Fluid and easily digested food, with wine or spirits, must be freely supplied and, when the patient is unable to open the mouth or to swallow, should be administered by enemata or by means of an elastic tube passed through the nose into the gullet. Pain may be relieved by the internal administration of opium, by subcutaneous injections of morphia, or by inhalation of chloroform. In many cases painful and violent muscular spasm has been much allayed by the application, along the spine, of bladders of ice. Great care must be taken to guard the patient from all causes of excitement and irritation and the room in which he is confined should be kept darkened and at a uniform temperature. It is very important that there should be a speedy and free evacuation of the bowels. In cases of traumatic tetanus following a wound, the injured part, if painful and inflamed, should be poulticed and kept as much as possible at rest. Tetanus demands treatment at the hands of the doctor, who may or may not require to invite the assistance of a specialist.

THERAPEUTICS

(Greek, **therapeuein, " to heal "**) is that department of medicine which is concerned with the discovery and application of remedies for disease. In its widest sense it really constitutes the whole of the art of healing, as distinct from surgery. It thus considers the physical and chemical properties of the materials used, the sources from which they are derived and the methods for compounding them—a branch which is comprehensively known as materia medica ; the action and uses of drugs ; the employment of antitoxins and antiserums ; inoculation ; the use of particular organs or extracts thereof (such as thyroid gland, bone marrow, pepsine, suprarenal capsule, thymus, raw meat)—a mode of treatment specifically styled organotherapy ; dietaries electrotherapeutics ; hydrotherapy (baths and " cures ") and exercise. The whole subject can be most advantageously studied in Dr. J. Mitchell Bruce's *Manual of Materia Medica and Therapeutics.*

THERMOMETER AS TEST OF FEVER

Until within a recent period it

was customary to judge of the intensity of the fever by the sensation of heat imparted to the hand of the observer, as well as by the frequency and character of the pulse and the symptoms in general. In addition to these methods of observation, we now ascertain the actual temperature of the body by means of a clinical thermometer, made for the purpose, the bulb being usually placed in the patient's armpit or mouth. The temperature thus taken in healthy persons is 98·4° F. It is found to be the same in all persons in health and in all latitudes, with slight variations. It is therefore called the norme, or normal temperature. Transient variations within a degree do not indicate disease, especially in childhood, at which period of life the temperature is more easily influenced than afterwards. In shock, collapse and immediately after the loss of blood, the temperature falls ; very great activity causes it to rise, as does inflammation of an acute character. An increase of a degree or a degree and a half that is continuous indicates fever. The thermometer in fever often rises to 102° or 104°. If it reach 105° in continued fever, the case is grave ; a temperature of 106°, which does not promptly fall, indicates great danger and above this a fatal result is almost inevitable, if sustained for any length of time. In periodical fevers, when the rise in temperature is of short duration, it is frequently very high. In fatal cases of acute rheumatism it may reach 109° or 110°, and it may even reach 110° or exceed that in sunstroke, which is a fever of great intensity. In many instances, where death takes place in consequence of the rapid overwhelming increase of the heat of the body, the temperature rises a degree or even more during the first hour or so after life is extinct.

THIGH-BONE, THE

The thigh-bone is articulated by means of a large round head deeply sunk into a corresponding hollow in the pelvis ; freedom of motion being thus combined with great security. The thigh may be moved backwards and forwards, as in walking ; and also outwards and inwards, as when sitting on horseback, or with the legs crossed. The socket being much deeper than that of the shoulder-joint, the thigh-bone has not the same range of motion as the humerus, but it has proportionally greater security.

THIGH, FRACTURE OF THE

A case of broken thigh is the most difficult to undress. The injury is in itself a serious one and is liable to become much more so by rough or clumsy handling. In a case of this kind, the bed-clothes should all be turned back to the foot of the bed and the patient placed in the middle, having previously taken care to protect the under sheet with a rubber cloth, if the clothes are dirty. If the patient be a male, remove the coat, waistcoat and collar as gently as possible. The outer seam of the trouser leg containing the injured limb should then be ripped up until the trousers are completely open, waistband included. The buttons should then be unfastened (the sheet being first thrown over the patient to prevent unnecessary exposure), and the cut trouser leg drawn with the utmost care and gentleness from under the whole length of the leg to the inside, the hand being slipped under the thigh, if necessary, to avoid all dragging. The patient must then be gently raised, sufficient to draw the body of the trousers from under him ; the other trouser leg can easily be drawn off while the sheet is kept over the patient. The sock or stocking should be cut open down the seam of the leg and drawn off, while the ankle is firmly but gently held without raising the leg, in order to avoid any jarring of the broken thigh. A bed or couch is the proper resting-place in cases of fracture of the leg or thigh, as the recumbent is the only easy posture ; and you need not be anxious to extend the limb, as most unprofessional persons would advise, but let it be in a relaxed position till the arrival of the surgeon.

THIRST

Thirst is a sensation closely resembling hunger in being a general sensation, although it is commonly considered only as local, arising from the dryness of the mouth and throat. This dryness of the mouth and throat is produced by a deficiency of liquid in the body ; but it may be and often is produced when there is no deficiency in the general system, nothing but a local disturbance, this disturbance producing a local sensation. Men have been known to endure absolute privation of food for some weeks, but three days of absolute privation of drink (unless in a moist atmosphere) is perhaps the limit of endurance. The effects produced by thirst are a dryness of the mouth, palate and throat ; the secretions become less copious ; the mouth is covered with a thick mucus ; the tongue cleaves to the palate ; the voice becomes hoarse ; the eyes flash fire ; the breathing grows difficult ; a feverish excitement, often passing into delirium, comes on. Sleep also grows fitful. It is to be observed that the sensation of thirst is never agreeable, no matter how slight it may be, and in this respect it differs from hunger, which in its earlier stages is decidedly agreeable, in consequence of the pleasurable anticipations of its relief. Thirst is certainly under the control of habit. The sensations of hunger and thirst appear to be incompatible with each other : when the stomach requires food, there is no inclination to drink ; and when thirst rages, the very idea of solid aliment disgusts us.

The feeling of thirst in a healthy person, nourished on wholesome food, comes on distinctly when the body has lost about one pound of water. If we take violent exercise, or should the air be unusually dry and warm, then the ordinary loss of water is increased and must be replaced by a larger supply. If we take more salt than usual, or consume certain very savoury foods, or swallow those medicines which increase the flow of saliva, of gastric juice and other very watery secretions of the body, then again we must make up the extra loss by an extra supply of fluid. When we are out of health, when our pulse is high and our digestion imperfect, then also our mouth and tongue become dry and moist and we often experience a feeling of thirst which does not always correspond to a real want.

THORACIC DUCT

The thoracic duct, which may be regarded as the trunk of the absorbents, because it receives the absorbent vessels from almost every part of the body, including of course the lacteals, though small—being only about the size of a goose-quill in diameter—is a very important organ in the human organization. It begins at the lower end and back part of the abdominal cavity and passes upwards along the spine, by the side of the aorta, as high as the lower part of the neck on the left side, or opposite the seventh cervical vertebra, where it makes a sudden turn downwards and forwards, and enters the left internal jugular vein, just under the left clavicle or collar-bone. It pours its fluid, the chyle, into the current of the venous blood, going directly to the heart.

THROAT, THE

The throat is the common highway, so to speak, for the passage of air to the lungs and of food to the stomach.

It is protected and enclosed by various muscular and bony structures chiefly occupying the neck, along which, too, course the great blood-vessels that nourish the head and the brain, as well as the great nerve-trunks that pass from the brain to the lungs, heart, stomach and intestines and other organs, while the strong bones at the back of the neck enclose the most important or most vital part of the spinal cord. Thus the throat and the neck together are very important regions of the body.

THRUSH

Thrush, or parasitic stomatitis, is a disease common in infants who suffer from indigestion or malnutrition. It is most common among those who are ill-fed and ill-cared for. It is due to the growth in the mouth of a fungus which spreads in congenial soil such as is afforded by the unhealthy lining membrane of the mouth, and is readily conveyed from one child to another by direct contact or by the interchange of comforters or feeding bottles. It is rarely seen in children who are fed entirely at the breast. It shows itself in the form of small raised white patches on the tongue, gums, and inside of the cheek. These patches resemble the flocculi of milk, but are distinguishable by not being easily removed with a brush or piece of linen. The mouth becomes sore and tender, and there is consequently often a difficulty in inducing the child to take food.

When thrush occurs, a one grain calomel powder may be given. The mouth should be frequently washed out with weak Condy's fluid, and at frequent intervals the patches of thrush should be touched with finely powdered borax on a wet camel-hair brush.

TIBIA

The tibia is the principal bone of the leg and is the only one articulated with that of the thigh. Its lower end forms the projection at the inner ankle. The fibula is the long, slender bone at the outer side of the leg, the lower end of which forms the outer ankle. The tibia and fibula both contribute to the formation of the ankle-joint, which, like that of the knee, is almost limited to flexion and extension.

TIC DOULOUREUX

Facial neuralgia, or tic, is, perhaps, the most common of all forms of neuralgia and, as the nerve attached is made up of three branches, any one of these may be affected.

One of these branches goes to the eye and a part of it passes out from the orbit and turns up over the forehead. This is often the seat of pain and, when this is so, the neuralgia generally affects one side of the forehead, extending upwards towards the hair. The next branch of this nerve comes below the eye and extends over the cheek and on to the side of the nose. This, too, may be and very often is affected, especially when the teeth on the corresponding side are decayed. The third branch of the nerve extends along the lower jaw and is not so often the seat of pure neuralgic pain as the others. The branch on the forehead may be affected without any definite cause being ascertainable. But in the other branches a cause is much more likely to be found in some decayed teeth, or some condition of the jaw which gives rise to irritation, and though such maladies are included under the term neuralgia, they are rather instances of pain produced in one spot appreciated by the sensory centres in another.

For general treatment, etc., *See* NEURALGIA.

TIGHT LACING

The diseases which result from this interference with nature are various and, though they do not all occur in every woman who adopts this mischievous practice, yet on inquiry too many may be traced to this source. Of these diseases, consumption is the most frequent and most fatal. Nor is the real object of all this painful and irksome compression in any instance attained. The figure of the female bust may be altered by it, but not improved. Sculptors, who are the closest observers of nature and are trained to transfer to their statues every beauty presented to the eye, have invariably given ample dimensions to the lower part of the chest. The more, therefore, any woman, not of unnatural proportions, compresses her waist, the more does she depart from resemblance to "the statue which enchants the world." When the normal vertical bearing of the body is maintained, every part above rests upon that below. The head rests upon the upper part of the vertebral column and the weight of the trunk upon the hips ; the same plan is carried out through the lower extremities to the arch of the foot. When the body is in this position, the vertebral column has two curves—a lesser curve above that gives increased capacity to the chest and a greater one below. Then the abdominal muscles are tense and the weight of the contents of the abdomen is thrown upon the pubic portion of the pelvis. But when these muscles are weakened and relaxed and the greater and lower curve in the spinal column is impaired, owing to pressure from above, the weight of the contents of the abdomen is thrown into the pelvic cavity, causing displacement and prolapsus of the organs situated there. After laces were discarded for a time in favour of firm hooks and eyes for fastening the corset, there was a decrease in chest diseases, but there was a corresponding increase in uterine diseases. Some of the mechanical supports that have been invented for uterine displacements are adjusted with the design of restoring the natural curve in the lower portion of the vertebral column, thus giving the abdominal muscles their true lifting power and throwing the weight of the abdominal viscera upon the pubic bones of the pelvis, where it belongs. When questioned, women rarely admit that they wear their clothing tight. The hand can be readily passed under the bands, when the diaphragm is relaxed and the air is expelled from the lungs and their garments are therefore considered loose and comfortable. Yet the wasplike waist is in the public view—proof positive of injurious tight lacing. The marvel is how women have come to delude themselves into thinking that they are most beautiful when they most resemble a ninepin.

TIGHT RINGS

A common accident to a finger is the unintentional confinement of a ring with so much tightness as to prevent the withdrawal of it by any ordinary means. This sometimes arises from some sudden swelling of the finger, at other times from slow and gradual growth of the finger in size, when the person has neglected to remove the ring for years. But the inconvenience arises more frequently from the person's own indiscretion in forcing on a ring that is too small, when the ineffectual efforts to withdraw it increase the evil by bringing on soreness and inflammatory swelling. In all these cases first try the effect of cold by immersing the hand in ice-cold water ; if this does not alone reduce the swelling, hold the hand up so as to encourage the return of the venous blood and, at the same time, apply cold by means of wet rag. If this also fail, make trial of the following ingenious device, which very frequently proves successful. Wrap a piece of packthread closely and tightly round and round the finger, beginning at its extremity, until the ring is reached, then insert the end of the string by means of a fine blunt bodkin, or other such instrument, under and through the ring, draw it tight, and then begin to untwist the string from around the finger, and the ring will be gradually brought down the string at the same time. When all these things fail, the ring must be filed off, as the consequence of its retention will be ulceration and perhaps mortification.

TINEA, OR RINGWORM

The word tinea has been adopted to indicate the group of diseases which are caused by the presence and growth upon and in the skin of a vegetable parasite. The affections coming under this head are really three in number, and are distinct from each other : they are all known as vegetable parasitic eruptions. They are, firstly, the various forms of ringworm of the body, scalp, head, etc., which have the general name tinea, trichophytina, because caused by the parasite known as *trichophyton tonsurans*. Secondly, we have favus, or tinea favosa, popularly known as crusted or honeycomb ringworm, and, thirdly, the tinea versicolor, or liver spots. Each of these varieties of ringworm must be briefly touched on.

TINEA TRICHOPHYTINA, OR RINGWORM OF THE SCALP

Ringworm, as properly understood, has nothing to do with any worm or animal life, but is caused by the growth in the skin of a low form of vegetable life allied to ordinary mould. When some of the scales of a hair affected are placed in liquid and magnified about 300 times, we can then very readily see the spores, or seeds, and the mycelium, or thread of the fungus. Ringworm of the scalp shows itself as a dry, scurfy, or scaly condition of some portion of the scalp, generally in separate patches more or less circular, on which the hairs are broken off and the surface presents a dirty appearance, with some redness beneath. In cases which have lasted long, a large portion of the scalp may be invaded and there may be very little of the broken-off or nibbled-off appearance. On the face, body, or limbs the disease appears in the form of rings of various sizes, generally rather round and of a reddish colour ; they begin as minute points and increase in size pretty rapidly, healing in the centre as the disease progresses centrifugally. In the beard this disease forms what is known as barber's itch and may prove at times a very obstinate and annoying difficulty. All these eruptions, as also *tinea favosa*, are contagious and children with them should not go to school or play with others so as to expose them, nor should one with ringworm of the scalp or beard go to the barber's to have the hair cut or to be shaved. Some of the cases of ringworm of the face or hands in children or adults are trivial matters and may be safely treated at home by such remedies as ink, vinegar, etc. ; but ringworm of the scalp or beard always requires very careful attention, and is often very rebellious at the best. Very frequently it can be cured only by epilation, that is, the extracting the hairs separately by means of forceps, and the subsequent application of very severe remedies. *See* BARBER'S ITCH.

TINEA FAVOSA, OR PORRIGO

This variety of tinea is due to the growth of another fungus and is not nearly so common as ringworm of the scalp. It is the porrigo of older writers. When fully developed, it is seen in the form of small cup-shaped crusts of a pale yellow colour, which may be picked off quite readily and are found to be easily broken up and leave behind them a small red depression devoid of cuticle. These crusts are formed entirely of the mass of growth of the vegetable parasite or mould.

TINEA VERSICOLOR, OR LIVER SPOTS

The third and last variety of disease caused by a vegetable parasite is the tinea versicolor, formerly called "liver spots." Tinea versicolor appears principally upon the chest and back, from which places it may sometimes spread on to the arms and neck, and even cover most of the body. It is made up of a number of patches of a light brown colour, which are generally roundish and of a size varying from that of a pin's head to an inch or more in diameter. They are not elevated, but almost on a level with the skin, and are either a little scaly on the surface, or may be made to scale with a slight scraping. If the scales be moistened with equal parts of liquor potassæ and glycerine, and magnified 300 times, the spores and threads of the vegetable growth can be plainly recognized. *See* CHLOASMA.

TINEA, TREATMENT OF

The vegetable parasitic eruptions grouped under the general term tinea or ringworm being wholly local diseases, acquired by contagion, require only local applications, as a rule, for their removal. The remedies are anti-parasitic and are such as destroy the life of the plant, largely preparations of mercury, sulphur and tar. As used by medical guidance, they are perfectly harmless and among hundreds of these eruptions thus treated no harm has come to the patient. When ringworm affects the body it may be well treated with liniment of iodine painted over the spots every morning: where soreness results, the painting may be suspended for a day or so. In ringworm of the scalp the affected part should be shaved, to admit of effectual treatment. Crusts that have formed should be softened with bread-and-water poultices and removed and the patches of ringworm painted with liniment of iodine. Coster's paste (iodine and oil of tar) well rubbed over the part with a brush of short hard bristles and salicylic acid lotion (10 grains of the acid to one ounce of chloroform or ether), rubbed in well every morning with a piece of linen, are alternative treatments in case of failure with the iodine painting.

TOBACCO, USE AND ABUSE OF

That a substance possessing such powers for evil should, in spite of them, be so largely used by man, seems to prove that there is in it some peculiar virtue fitting the needs of the race. Tobacco lessens the waste of nervous tissue, enabling it to perform its labour with less friction, so to speak, than would otherwise be the case. The tobacco habit is in great measure psychical. In the busy mart of the city, in the fatigues and excitements of a military campaign, in the exposure of a hunter's or a sailor's life, the nervous system craves something that, after the day's worry and battle, shall soothe it into quiet. These speculations serve to indicate the proper use of tobacco by the brainworker, namely, that its employment should be restricted to the hours of rest and calm; that it should be used to soothe the nervous system and help it to settle into the state of quiet in which it recuperates its powers. The more sedentary and the freer from emotional or other excitement is the life of the brain-worker, the less excuse is there for the use of the narcotic. Moderation in the use of tobacco is almost as necessary to the brain-worker as moderation in the use of alcohol. It is certain that very frequently nervous breakdowns are hurried in their development by the constant employment of the drug. The manifestations of the excessive use of tobacco are not always uniform, but in the great majority of cases they consist of evidences of excessive nervous irritability especially affecting the heart. Minor ills, such as chronic sore throat, dyspepsia, etc., are not rare, but the serious symptoms which demand attention are usually connected with the heart. Cardiac distress and palpitations, irregular intermittent pulse—these, in minor and major degrees, are nearly always present when tobacco has played an important part in the production of a nervous breakdown. It should never be forgotten that the sedentary brain-worker bears tobacco much worse than does he who leads an active outdoor life; and also that the same person, during his periods of active outdoor exertion, resists the deleterious effects of tobacco much more strongly than he does when a desk-student. More than this, not only do habits of life, but also personal and race peculiarities, affect the tolerance of tobacco. Idiosyncrasies, that is, personal peculiarities, must be studied in the concrete; but peculiarities of classes or races of people, that is, temperaments, may be studied as general principles. It may, therefore, be laid down as a law, that nervous temperaments badly withstand the deleterious effects of large amounts of tobacco. The phlegmatic Teutonic student lives in an atmosphere of tobacco-smoke which would be utterly detrimental to his more nervous Oxford or Cambridge *confrère*. It is evident that, as with alcohol, so with tobacco. No fixed rule can be laid down as to the daily amount to be used. We have seen a large number of cases in which tobacco has evidently been very potent for evil ; and our experience seems to warrant our stating that very frequently, if not usually, in the nervous Englishman, who works hard with his brain and takes but little exercise, more than two mild cigars a day is injurious ; and that it is best to take the "smoke" after dinner during the hours of rest.

TONGUE, THE

The tongue is composed of muscular fibres running through it in different directions, mingled with a considerable amount of cellular and fatty matter. It is abundantly supplied with vessels and nerves. In the centre the tongue is divided by a depressed line, known as the raphé. It is covered by a dense mucous membrane, continuous with that of the mouth, on which there are numerous papillæ, small towards the tip, but becoming much enlarged towards the base. The tongue may be described as a muscular body lying on the floor of the mouth within the lower dental arch. It is covered by mucous membrane, beneath which are mucous glands having orifices opening upon its surface. It is the organ of the special sense of taste and presides over the processes of mastication and swallowing. The exquisite sensibilities of touch and taste residing in the tongue are important aids in mastication. Its sense of taste informs us of the qualities of the food and its sense of touch recognizes its physical condition—consistency, size, form and when it has been sufficiently masticated. By its muscular structure it collects and moves the food from one side of the mouth to the other and, with the aid of the lips and cheeks, keeps it between the masticating surfaces of the teeth. When the food is in a sufficiently softened condition, the tongue collects it upon its upper surface and passes it backwards into the pharynx—a funnel-shaped canal situated on the middle line in front of the spinal column, between the base of the skull and the œsophagus or gullet—which serves as a common origin for the digestive and respiratory tracts, giving passage to the air during respiration and to the food at the time of deglutition or swallowing. By virtue of its complicated muscular structure the tongue is also capable of the great variety of movements essential to suction and to speech. The tongue is valuable in diagnosis of several diseases. In scarlet fever it is bright red and rough (the well-known "strawberry" tongue) ; in diabetes it is dry, red and glazed ; in thrush it is covered with small white spots ; in derangement of the stomach it is "dirty" or furred, the fur being white, yellow, brown, or black. When ulcers form on the tongue a boracic acid or chlorate of potash mouth-wash should be used regularly until relief has been obtained. The same treatment should also prove efficacious in the milder forms of inflammation, but when the tongue is greatly increased in size and much inflamed the doctor's aid should be at once invoked.

TONIC DRAUGHT

See DRAUGHTS.

TONIC INFUSIONS, BITTER

See INFUSIONS, BITTER TONIC.

TONIC MIXTURES

See MIXTURES.

TONIC PILLS

See PILLS.

TONICS

Tonics, also called corroborants, are medicines which increase the tone of the muscular fibre and whose continued administration gives strength to the body. Tonics, to a certain extent, are stimulants, inasmuch as they rouse the vital energies, but the incitement is slowly produced and is permanent. There are no remedies which require greater discrimination in their administration than tonics. As a general rule, they ought not to be given in ardent fever when the pulse is hard, the stomach irritable, and the tongue foul. The diseases in which they are appropriate are evidently those of deficient power.

TONSIL

See SOFT PALATE.

TONSILS, ENLARGED

(Latin, **tonsilis**, "shorn").

One form of chronic sore throat consists mainly in a permanent enlargement of the tonsils. It is most frequent in children and young adults and rarely occurs after the thirtieth year. Sometimes it is congenital, or at least noticed very shortly after birth. It usually occurs in those whose constitutions are imperfect from scrofula or other hereditary taint, or have become impaired from acute or chronic disease, followed by impoverishment of the blood, as it is termed. The enlargement varies from the merest increase of volume to a size as large as walnuts, the two tonsils touching each other and pushing the palate forwards. They are likewise apt to be enlarged upwards and downwards. The condition is readily recognized on inspection of the throat through the open mouth and the extent may be determined by following the outline of the gland beyond sight with the finger. The tonsils are often diseased and adherent to the folds of the palate.

TONSILS, ENLARGED, SYMPTOMS OF

The symptoms are impairment of articulation, attended in some cases with impairment of respiration and swallowing. The mouth is often kept habitually open ; the throat is dry from rapid evaporation of its moisture ; there is snoring in sleep and the voice has a nasal twang. The necessity sometimes existing for bending the head forwards, or towards the side least affected, in order to breathe effectually, may give rise even to permanent deformity of the chest walls. The impairment of respiration leads to insufficient oxygenation of the blood and eventually ill health. In extreme cases, suffocation is at times imminent and death may occur rather suddenly from this cause.

TONSILS, ENLARGED, TREATMENT OF

The treatment of enlarged tonsils

is both constitutional and local. In cases of moderate severity and recent standing constitutional treatment alone may be adequate to a cure. In most instances local treatment is necessary ; in very many it becomes absolutely requisite to remove a considerable portion of the diseased glands by surgical interference—a perfectly safe, simple and advisable procedure.

TOOTH

A tooth consists of enamel, cementum, dentine, and dental pulp. The exposed part—that above the gum—is called the crown ; that which is held within the socket, the root ; and the narrow part between the crown and the root, the neck.

TOOTHACHE

Pain or discomfort in or about a tooth may arise from a variety of causes. In perfectly sound teeth rheumatism sometimes causes distressing pain, which may be situated in one or two teeth or involve half the jaw, or even the entire jaw. Neuralgia originating, as it does very frequently, in diseased teeth, may have its origin elsewhere and manifest itself in teeth which are perfectly sound. Valuable teeth are often sacrificed from this cause. Pain is frequently experienced in a tooth which is only sympathetically affected. A recession of the gums and alveolar processes from about the neck of a tooth, exposing the cementine, gives rise in some cases to a dull and annoying ache. Particles of tartar which have found their way between the gum and the alveolar process may occasion soreness and distress, if not acute pain. The disease known as exostosis, which may be described as an unnatural enlargement of the root of the tooth, is often the cause of constant uneasiness and sometimes of distressing pain. In some cases there is a peculiar deposit in the pulp of the tooth of granules of bonelike material which causes severe neuralgic, generally paroxysmal, pain, sometimes in the tooth (which yet gives no evidence of trouble either by soreness, discoloration, or decay) and sometimes reflected to the eye, ear, scalp, or elsewhere. The death of the pulp in a tooth—the result of a fall, blow, or other accidental or voluntary violence, or from some unexplained cause—becomes the occasion of unbearable pain when the products of its decomposition are confined in the pulp cavity. Some teeth, in which a cavity of decay has exposed the dentine, become exceedingly sensitive to the influence of irritating agents. In such cases, sweets or acids taken into the mouth, or hot or cold drinks, or even the secretions of the mouth, will occasion pain. Chief in frequency, however, of the causes of pain in a tooth is the absolute or approximate exposure of the pulp in a cavity having the general form of the tooth and protected on all sides by its walls. When by the agency of decay the overlying floor of the cavity becomes so thin as to be permeable, the result is irritation of the delicate and exquisitely organized pulp and consequent acute pain. If the protecting wall of dentine has been so far disintegrated as to expose the pulp, the latter is liable to constant irritation by contact with food or drink, with the secretions of the mouth, or even with the air. A small defect in the continuity of the dentine is likely to result in greater distress than would ensue from complete exposure, for the reason that in the latter case the swollen pulp has room for its enlargement, while, in the former, the unyielding walls of the tooth confine it. The pressure makes manifest every pulsation of the heart, causing that form of anguish known as the jumping toothache. Those who have experienced this pain need no description of it ; those who have not would do well to avoid acquaintance with it. Still another form of pain in connexion with teeth is that which is occasioned by an inflammation of the membrane surrounding the roots and investing the sockets. This affection is known by the name of periodontitis—inflammation about a tooth. The condition may be either acute or chronic and may be the result of the continued influence of neuralgic gout, or rheumatism ; of the irritation of deposits of tartar between a tooth and its socket ; of mercurial poisoning, or of one of the eruptive fevers (measles, scarlet fever, smallpox, etc.) ; of an attack of scurvy ; of degenerative changes from age or other causes, either in the membrane itself or in the roots of the teeth, or of false (premature) occlusion of a tooth in mastication.

TOOTHACHE, ACUTE FORM OF

The acute or active form may be the result of a cold settling in the jaws, as it is commonly expressed, and generally subsides after a few hours or days of discomfort. The most common and the most severe form of periodontitis, however, is that which is associated with disease or death of the pulp in a tooth. Teeth in which an unsuccessful attempt has been made to save an exposed pulp by "capping," as well as those in which the pulp has been devitalized but its complete removal not accomplished, are liable to periodontitis, especially during sudden changes in the weather, or as a result of a disturbance of health. Periodontitis usually begins with a scarcely noticeable uneasiness in the tooth, but deepens into a dull, heavy, sometimes throbbing, persistent pain. From the swelling of its investing membrane, the tooth projects beyond its fellows, compelling a discontinuance of all masticatory efforts for the time being. The pain increases in intensity and is accompanied by more or less swelling of the face. Unless the diseased action be arrested by treatment, an abscess forms at the root of the tooth, the resulting pus generally finding its way to the surface of the gum opposite the abscess, or at some other point in the mouth, forming what is popularly known as gum-boil. After the discharge of the pus the pain subsides and the swelling gradually disappears. But the disease is not cured and, after a longer or shorter period, depending on various circumstances—notably on the good or the ill health of the sufferer—there will be a recurrence of the abscess. If this is repeated often, the bony socket of the tooth becomes affected, the sockets of adjoining teeth participate in the trouble, the teeth lose their vitality and drop out and sometimes necrosis (death) of a portion of the jaw follows. Sometimes the pus, instead of finding exit near the affected tooth, burrows among the tissues and makes an outlet (called a sinus) for itself at a distant point inside or outside the mouth, not infrequently producing disfiguring scars on the face. When the symptoms indicate periodontitis, treatment should be instituted with a view to prevent the formation of an abscess, or, if this effort fail, to influence it to open at a desirable point—inside of the mouth and not upon the face. Domestic treatment of this affection is usually wrongly directed. The best plan is to consult a dentist at an early stage of the trouble, at which time it can frequently be aborted.

TOOTHACHE, RELIEF OF

For the relief of toothache due to approximate or actual exposure of the pulp, an application to the cavity of decay of a little ball of cotton saturated with oil of cloves, oil of peppermint, or phénol sodique in full strength, is perhaps the best home treatment when the cavity is easily reached. In other cases, holding in the mouth phénol sodique diluted with from three to six times its bulk of water, will frequently alleviate the pain. But it must be remembered that, if the pulp is nearly or quite exposed, a recurrence of the pain is probable at any moment. For permanent relief the only efficient plan is to secure the services of a dentist. When it becomes perfectly clear that toothache will only yield to drastic remedy, it is foolish to postpone extraction. This must be resorted to sooner or later, and it is wiser to have the offending tooth out at once than endure the pain for days and then have it out. It should be borne in mind that toothache often proceeds from a disordered stomach and will disappear when the cause is treated and removed. In the case of a child suffering from toothache in a temporary tooth, the difficulty of applying local sedatives directly to the cavity of decay is vastly increased by the fear (often well founded) that the affection will be aggravated by the lack of skill in the home operator and by the excessive amount of the salivary secretion, making it difficult even for an expert to operate satisfactorily. The disinclination to have in the mouth anything which tastes or smells unpleasant, or which produces any disagreeable sensation upon the mucous membrane, is a difficulty in the way of using such remedies as have been suggested. In these cases holding warm milk, or even warm water, in the mouth will frequently give temporary relief.

TOOTH-BRUSHES, SELECTION OF

See HYGIENE OF THE MOUTH.

TOOTH-DRAWING, BLEEDING AFTER

The bleeding which follows the extraction of a tooth is usually of short duration and ceases without requiring any attention. In very exceptional cases, however, it may be so profuse and long-continued as to demand treatment. The anxiety of the patient to have it cease leads sometimes to such constant interference as effectually to prevent natural cessation by the clot which would otherwise form in the socket. The first injunction, therefore, in such cases is, Do not disturb the clot. If, in spite of such negative attention, the bleeding continues, resort may be had to the application of astringents or styptics, such as alum, tannin, catechu, kino, phénol sodique, or remedies which act mechanically such as powdered resin, burnt cork, cotton wool, etc. Of the various astringents, tannin is perhaps the most efficacious. Either that or powdered alum may be applied to the socket of the tooth on a small pellet of cotton. If these remedies are not available, cobweb, which can generally be procured without much difficulty, may be rolled into a small pellet or ball and conveyed into the bleeding socket by a match-stick. If the case be stubborn and refuse to yield to such appliances, pressure may be added. The little pledget of cotton carrying the tannin or other styptic should be dropped into the socket, which may then be compressed by a V-shaped saddle (made of cork or wood), so as to clamp the margins of the gum, and be held in place by the opposing teeth or jaws, assisted, if need be, by a bandage holding the jaws together. To divert the circulation to other parts of the body, hot foot-baths may be resorted to ; and a sitting instead of a recumbent position assumed, that gravitation may also conduce to the desired result. In exceptionally extreme cases, when such measures as have been indicated fail, further treatment should be instituted by the dentist or doctor, who will know exactly what the case requires.

TOOTHPICK, USE OF

See HYGIENE OF THE MOUTH.

TOUCH, SENSE OF

The organ of this sense is really co-extensive with the whole surface of the body. The sense of touch appears to exist only in four classes of animals—in most mammalia, in a few birds, in serpents and probably in insects. Although all animals may possess that feeling which makes them sensible to the impressions of warmth and cold, very few possess, like the human subject, organs exclusively appropriated to the sense of touch and expressly constructed for the purpose of feeling, examining and exploring the qualities of external objects. The sense of touch is the sensibility of the nerves of the skin to mechanical resistance and is especially manifested in the tips of the fingers. The special organs of touch are the papillæ of the skin. There is no sense which is so capable of improvement as that of touch. Of this power of improving the delicacy of touch, says Dr. Carpenter, " we have examples in the case of certain artisans, whose employments require them to cultivate their tactile discrimination ; thus the female silk-throwsters of Bengal are said to be able to distinguish by the touch alone twenty different degrees of fineness in the unwound cocoons, which are sorted accordingly ; and the Indian muslin-weaver contrives by the delicacy of his touch to make the finest cambric in a loom of such simple construction that European fingers could at best propose to make a piece of canvas at it."

TRANCE

See CATALEPSY.

TRICHINOSIS

Among parasitic enemies, the *trichina spiralis*, or pork worm, is possessed of great power for mischief. In spite of all the remedies that have been introduced for the malady which it produces in man, a large number of the cases prove fatal and even those which recover do so after weeks or perhaps months of suffering. The history of our knowledge respecting the trichina worm is an excellent example of how microscopical investigation of disease has been of immense benefit to humanity. Previous to the investigation of Dr. Zenker, of Dresden, in 1860, cases of trichinous disease were supposed to be unusual forms of typhoid fever and inflammatory rheumatism, or, when connected, as they sometimes were, if they occurred in whole families at once, with the eating of pork, were attributed to some peculiar poisonous putrefaction of the meat. The Dresden microscopist, however, discovered that the painful symptoms and mortality of this puzzling complaint were due to the infection of the patients with the young trichina worms, which, hatched out in the intestines of the unfortunate people who ate diseased pork, burrow their way through the muscles to all parts of the body and, by the irritation they set up, as so many millions of little moving splinters in the flesh, cause the suffering and death so common in this malady. Their number is sometimes very great and with them indeed, as with most of the parasites which infest us, Nature appears to have done her best to compensate for their wonderful minuteness by rendering them destructive through their almost infinite number. Thus, it has been found that a cubic inch of pork may contain nearly a hundred thousand trichinæ and Dr. Thudicum calculated that there were twenty-eight millions of young worms in the muscles of a patient he examined. Trichinosis comes on generally with violent vomiting and diarrhœa, followed by high fever, with severe pains in the limbs, back and head. For some time it can scarcely be distinguished from acute poisoning, or sometimes from typhoid fever ; but about the seventh or eighth day of the disease, a peculiar dropsical swelling of the eyelids and root of the nose appears and indicates the true nature of the malady. The trichina worm is very hard to kill and withstands salting and smoking of the pork in which it exists without difficulty. All pork should, therefore, be carefully examined with a microscope before it is exposed for sale and, as an additional precaution, should never be eaten without thorough cooking. Even a very minute fragment of the innermost part of a ham which escapes being heated nearly to the boiling-point of water, may convey several living trichinæ into the stomach of a person who eats it and give rise to this painful and often fatal disease. Trichina worms are chiefly found in pork, but are also met with in the flesh of rabbits, cats, rats and mice.

TRUE RIBS

The seven uppermost ribs are so called because each is connected directly with the sternum or breastbone by means of a separate cartilage.—*See* Ribs.

TRUSS

A truss consists of a ring of steel, to the extremities of which are attached pads, one of which presses upon the aperture and retains the hernia within the abdominal cavity. There are many forms of trusses, but the measurements to be taken in writing for any form recommended are the same : thus, if an inguinal or femoral truss be required, the circumference of the body at the hips should be stated, midway between the spine of the ilium and the trochanter. In one truss there is a spiral spring acting on the pad; another dispenses with the circular spring, the pressure upon the rupture being gained by a strap passing under the thigh and acting on a spring lever attached to the pad; another has a pad revolving on a ball and socket; another truss has a flat and level pressure and is applied at the sides of the hernial opening, instead of at the axis. The part of the skin upon which the pad presses should be regularly washed and bathed with eau-de-Cologne or spirit, or dusted with violet powder or Fuller's earth. In children an india-rubber band and pad answers generally. On the subject of trusses a few remarks may be added. If a hernial protrusion occurs in either sex, mechanical treatment should be adopted at once, for no matter whether in infancy, youth, or middle age, judiciously applied trusses frequently effect a cure without further surgical interference and at all events cause but little trouble or annoyance. The doctor may be consulted as to the form of truss needed and may himself take the necessary measurements and apply the apparatus in the first instance. In most reputable establishments, however, expert fitters (men and women) are employed whose services may be relied on in the selection of the truss. In all other cases the doctor's advice should be obtained. All quack devices should be scrupulously avoided.

TRUSSES, HINTS ON

The follwing hints on trusses are of value, as the experience of an authority on the matter :—" In the majority of cases, the circular spring truss is the best form. The curve of the spring and the relative position of the pad with it should be appropriate to the configuration of the wearer. A single piece of metal should form the spring and foundation of the pad. As far as practicable the spring of the truss should pass around the bony rim of the pelvis, fitting closely to the figure, and should lie out of the region of the great muscles of the buttock (*glutæi*). The form of the spring may be designed after the French model or the German. The former resembles the coil of a watch-spring and is very elastic and clinging ; the latter almost exactly fits the outline of the body in its state of repose ; it is almost inelastic and very hard. The French is always pressing inwards, even when the wearer is at rest ; the German scarcely presses at all when the abdomen is soft, but resists with power when any expulsive force makes the abdomen swell. The best shape for the spring is one which forms a medium between the two. The pad should be of moderate dimensions. For the adult it should not exceed two and a half inches in length and two inches at the widest part. Its superior edge should follow the upper line of the spring, which falls a little from the shoulder or bend, where it lies in contact with the hip. The inner surface should be directed slightly upwards. The proper shape for the pad, and the materials of which it should be constructed, may be varied to accommodate particular cases. The wearer generally discovers after awhile which kind of pad is most free from annoyance ; that pad, however, is the best which maintains perfect and unintermitting retention of the hernia. Every pad should have attached to it two studs, one near its junction with the spring and another at its lowest point. To the upper one the transverse strap, passing from the free end of the spring, is attached ; the lower stud is used with the thigh strap, which should be always worn. It is loosely fastened on to the spring of the truss near its shoulder and should fall along the hollow beneath the buttock. In the erect posture of the wearer this strap should be moderately tight ; it prevents the pad from shifting and should never be discarded. The pad may be prevented from fretting the skin by covering it with fur, or by the interposition of some soft substance."

TUBERCULOSIS

(Latin, **tuberculum,** "a little hump").

A generic term for disease due to the entrance of a bacillus into the system and characterized by wasting and inflammation of the tissues. When it occurs in the lungs it is known as consumption or phthisis, in the brain it becomes tubercular meningitis, in the bowels it is known as tubercular disease of the bowels, in the glands of the abdomen it is called tabes mesenterica, and there may also be tuberculosis of the throat and other parts. Scrofula is an allied disease.

TUMOURS

(Latin, **tumeo,** "I swell").

These are morbid growths or swellings and usually divided into cancerous, fatty and fibrous, or, more broadly, into simple, or innocent, and malignant. Innocent tumours are harmless, except when they happen to interfere with a vital organ, or reach a great size or weight. The commonest forms are fatty and other varieties are bony and glandular. Of fibrous tumours wens are the most familiar example. The only treatment is operation, but this need not be necessary for several years. As a rule, it is simple, safe and effectual. Cancer is the outstanding example of a malignant tumour.

TURKISH BATHS

are often useful adjuncts to treatment in obstinate colds, rheumatism and other complaints, besides having a decided hygienic value. It is not everybody that can tolerate the whole of the somewhat prolonged treatment and those suffering from organic disease should never take a Turkish bath, save under express medical sanction. The customary routine is for the bather to proceed to the sudatorium or sweating chamber and remain there for fifteen or twenty minutes, until the perspiration comes off very freely. He then proceeds to the hottest chamber where, as a rule, a stay of five or ten minutes will suffice. He will next return to the sudatorium to await the shampooer's convenience. The shampooing process consists in a thorough cleansing, kneading, rubbing and smacking of the frame. After this he withdraws to the shower-bath and finally to the plunge- or swimming-bath. As he emerges the shampooer wraps him up in a huge towel and he retires to his couch where he lies until he has become quite dry, generally spending the time smoking or taking coffee, tea, or other light refreshment. The doubtful features of such a bath are the hottest room, part of the shampooing and the shower-bath ; but if the bather be free from organic trouble and can well sustain a shock, there is no part of the process that he need avoid. Experience will soon supply the necessary guidance. Turkish baths are held by some to be weakening, though the reason for this is not clear. Still, a Turkish bath once a month is often enough.

TURNER'S CERATE

See OINTMENTS.

TYMPANUM

See Middle Ear.

TYPHOID FEVER, SYMPTOMS OF

(Greek, **tuphos,** "smoke," "stupor from fever"; **eidos,** "form".

The principal characteristic of typhoid fever is ulceration of the bowels. Premonitory symptoms may precede the disease by days and even weeks and are such as restless sleep, mental disquietude, dizziness, pains in different parts of the body, hot dry skin and general malaise. The fever usually announces itself with a chill, or long-continued chilly feeling, and the bodily temperature rises. From this moment, whoever has charge of the patient will follow with the utmost exactness the doctor's orders, and will supplement them by extreme attention to the instructions given in the next article.

TYPHOID FEVER, TREATMENT OF

In noticing the symptoms, observe whether the patient talks in his sleep; is clear-headed when spoken to, but listless; has great thirst, a bitter taste in the mouth, a sore tongue; whether there is any rash on the abdomen, or whether the abdomen is puffed up, and note, also, exactly what the character of the secretion is. Write down the bodily temperature, morning and evening, and the rapidity and evenness of the pulse at corresponding hours. Observe whether the patient seems deaf; whether his breathing is laboured, especially in his sleep, as if there were inflammation of the air-passage. Some or all of these symptoms will be present and must be reported to the doctor, since during his visits they may not be well marked. The most critical period in bad cases of typhoid fever is generally the third week, but during the whole course of the disease, from its onset, the care of the nurse must never be relaxed. Keep the room in winter at 65° F. Ventilate it with an open window and an open fire, if possible; at any rate, keep the chimney open; let no draught blow upon the patient, but keep the air constantly changing. The atmosphere is filled with poisonous influences from the disease, coming from the skin, the breath and the secretions of the sick person; and this poison must be removed by free currents of pure air through the room, but not over the patient. The bed should be protected with a rubber cloth across the mattress, then the under-sheet, then the draw sheet, the upper sheet and a light blanket, when needed, but no quilt. It is a mistake to suppose that warm bed-clothing must be used and a free perspiration kept up. A moist skin is, however, very desirable and will be more likely to be promoted by cool bathing than by warm bedclothes. On no account allow a patient to be put on a feather bed and, when it can be secured, use only a small, rather hard, pillow; with a large, easily compressed feather pillow the head is kept too warm and, sinking into it, the air is cut off from the lungs, which should have fair play. Arrange the pillows in such a way that the chest is expanded, the shoulders being supported. Three times a day, or oftener, sponge the entire body with warm or cold water, as ordered, adding to a basin half full one ounce of alcohol. Carefully wash all creases of the skin, particularly those parts which are soiled by the excretions. Neglect in this manner for a while cannot be made good by after-care. Bedsores are frequently apt to form where there is not absolute cleanliness, and, as there are often involuntary passages from the bowels, a careful watch must be kept, both of the person and clothing, that everything may be clean and dry. Besides the general bathing, the face and hands must be repeatedly sponged during the day. Put a small piece of ice in a sponge and pass it across the forehead now and then. Dip a soft, thin cloth, folded once, in some evaporating lotion, like alcohol and water, and lay it across the temples, changing it before it becomes warm. All this serves a double purpose—it is cleanly and has a tendency to lower the fever which is consuming the patient. In neglected cases of fever a black crust will form across the lips and teeth. To prevent this, three or four times a day wash the mouth and teeth and tongue with cool water and a soft rag ; if the skin is broken, add to a tumbler of water a teaspoonful of chlorate of potash or borax ; if the skin is unbroken, salt and water in the same proportion, or a slice of lemon rubbed across the teeth and about the mouth will answer very well. This cooling and cleansing of the mouth are of the greatest comfort to the sick. Besides the attention given to the patient and bed, care must be taken that the room and its furniture are scrupulously clean —no soiled towels, napkins, or other articles must be allowed to hang about. Keep in the bed-pan, or vessel used, two or three ounces of carbolized water and throw a towel over it the moment you remove it from the bed, covering handle and all ; this not only keeps the air of the room from being contaminated, but prevents the nurse from breathing poisonous exhalations. Typhoid fever is more readily conveyed by these exhalations than in any other way. Carbolized water should be thrown down the water-closet daily. The night-clothes must be changed morning and evening and the sheets as often daily. When the strength of the patient will permit, he should be lifted into a fresh bed for the night, while the warm and damp mattresses in use all day should be carried out and aired. Never allow your patient, even in the first week of fever, to get out of bed and stand up, or to exert himself in any way while clothing is being changed. By the use of a bed-pan and urinal, all need for exertion is avoided. As the fever goes on there will be a disposition on the part of the patient to slide down in the bed and to lie in one position. Guard against this ; keep him well up on the pillow ; turn him from one side to another, putting a pillow snug against his back to support him. These changes are necessary, because long lying in one position will make the spot on which pressure comes tender and bedsores may form. Examine the back and hips and heels daily for redness and when it occurs, bathe the place daily four times in alcohol and water, dry thoroughly, dust with powder and use air cushions. In giving medicine, you have only to follow the directions of the doctor and report exactly any change of symptoms observed following the dose and the same with the stimulants. In feeding, all the ingenuity of the nurse will sometimes be needed to make the patient take the beef-tea, milk, etc. Generally, if the beef-tea is quite cold, it will be taken more readily by very sick persons and, where there is a tendency to diarrhœa, it should never be given warm. The kinds of food that may be used are specified by the doctor and will be gruels, milk, beef-tea, etc. In extreme cases, beef-tea of the strongest kind and milk-punch are given alternately, at intervals of an hour, half-hour, or less, as the doctor directs ; usually nothing more is required. When brandy or wine is ordered, do not allow the doctor to leave you to your own judgment as to the quantity ; request him to say how much of either he wishes given in twenty-four hours and then give it either as a cool drink with ice-water, or in milk, in broken doses throughout the specified time. If the doctor has no objection, as much cold water as the patient wants to drink may generally be given with safety ; it is needed to supply the waste through perspiration. Iced carbonic acid water, procured in syphons from the chemist, is better for quenching thirst and is slightly stimulating. Thin cold arrowroot, or barley, or toast water iced, may be substituted, if there is trouble with the bowels. Patients too ill to ask for water or cooling drink must be given them frequently in a feeding-cup. Never be so careless as to let the patient go without them. Small bits of ice are refreshing, but do not take the place of water. A cup of tea, prepared as the patient likes it in health and poured over cracked ice, is very refreshing and harmless. Sick persons frequently prefer to have the sugar omitted. In the case of delirious patients, never leave such a patient alone ; never contradict what he may say ; accompany him to the moon if he wishes it. Never speak loud to him ; he is not deaf because he is delirious. Keep him in bed ; if there is no other way, lay a long folded draw sheet across the blanket and tuck it well under the mattress on each side. A slight delirium need not excite alarm, unless it is of the low muttering kind, accompanied with pulling at the bedclothes, or reaching of the arms up into the air after some imaginary object. Confusion of thought, loss of recollection of recent events, an anxious look and a wandering and vacant eye are to be dreaded. Some of the dangers of the fever are diarrhœa, internal hæmorrhage, perforation of the bowels and pneumonia, which are all to be guarded against by implicitly following the doctor's directions, by avoiding any check of perspiration through direct draught, by keeping the patient perfectly tranquil and quiet, and without mental or bodily exertion or excitement of any kind from the moment the disease is declared. During the second week sometimes and even as late as the fifth or sixth, when everything seems to be progressing well, death may occur simply from incaution on the part of the nurse, in permitting the patient to sit up or make some seemingly innocuous exertion, or to eat harmless food in too large quantities.

TYPHOID FEVER, TREATMENT OF, IN CONVALESCENCE

In convalescence the patient's appetite is very large and must not be indulged. Give him nourishing food (not solid until distinctly permitted by the doctor) and give it in small quantities frequently ; once in two hours, if necessary. Dyspepsia is one of the accompaniments of typhoid fever and more food than can be assimilated at one time is very dangerous ; a moderate indigestion, a trifling diarrhœa, a slight nausea, should therefore be at once reported to the doctor. It is dangerous, because any violent straining may induce perforation of the bowels at the point of ulceration. The strength must be considerably advanced before going out of doors is permitted ; but fresh air should be secured as we have already directed. When the doctor allows a drive or short walk, only bright dry days should be chosen for several weeks after convalescence is complete.

TYPHUS FEVER

This is a highly contagious fever, attacking people of all ages. It occurs in an epidemic form, and generally in periods of famine and destitution. It has been known at different times under various names ; thus it has been called pestilential fever, brain fever, putrid continual fever, camp fever, gaol fever, etc. Sex and age have no influence in determining an attack ; nearly equal numbers of both sexes catch it and children, as well as adults and old people, are liable to it, but more cases occur after fifteen than before. Depressing mental influences, overwork and anxiety render the system more liable to contagion ; those who are badly fed and those who suffer from loss of a harvest ; people who have suffered the hardships of war, of civil strife and commercial distress are often its chief victims. Overcrowding, dirt and bad ventilation are important predisposing causes. Typhus is chiefly met with in cold and temperate climates, but not in the tropics. The chief cause of typhus is contagion, or the transmission of the disease from one person to another ; the other causes only render the system more liable to the action of the poison. Nearly all the evidence goes to show that typhus is essentially a disease that is caught by a healthy person coming in contact with one previously affected and it is easily caught during convalescence.

TYPHUS FEVER, SYMPTOMS OF

It is difficult to say how long the disease may be incubating in the system before it appears, but the period is certainly not constant and seems to vary from a few hours to several days. The onset is marked by severe headache, loss of appetite and languor and aching of the limbs ; the invasion of the symptoms is not so sudden as in relapsing fever, but much better marked than in typhoid fever. For three or four days the patient gets worse, being unable to go about and feeling chilly and prostrate ; he is then worse at night and restless ; the skin is hot, the tongue coated ; there is thirst and sometimes vomiting ; by the third day of the disease most are obliged to take to their bed, while this is not the case in typhoid fever, which is a much more insidious disorder. There is a general aspect of a typhus case which an inexperienced person will at once recognize ; the patient lies prostrate on his back with a dull and weary if not stupid expression, the eyes are suffused and watery and a dusky flush overspreads the face. As the disease progresses, the eyes are half shut and the mouth open, he lies moaning and unable to move himself or answer questions ; the lips and teeth are dry and covered with sores and look black ; the mouth is dry, the tongue dry, brown or black, and marked with cracks. The temperature rises from the first and reaches 103° or 104° F. by the middle of the first week : the highest temperature reached in the fever is seldom less than 105°, although it may be higher, but the higher the point reached, the greater is the danger. In mild cases the fever generally begins to leave on the twelfth day. The pulse is generally 120 in a minute, but is very easily compressed under the finger ; the heart sounds in very severe cases are feeble and the first sound may even be inaudible. A rash appears in nearly every case and is very characterstic ; sometimes it looks as if there were a general mottling just beneath the skin, or distinct spots may appear of small size and purplish colour ; they are irregularly rounded at first, may disappear on pressure, but soon become petechial ; oftentimes the two kinds occur together, but sometimes separately. The rash appears on the fourth or fifth day, rarely later. It comes on the back of the wrists first, in the armpits and over the epigastrium ; then it more or less covers the trunk. It seldom comes on the face and neck. The rash has something of a measly look, but the other symptoms are much more severe than are seen in measles. The rash lasts a variable time, but generally till the fourteenth or fifteenth day. No solid food can be taken, but the patient is always thirsty. The bowels in some cases are confined, in others they are opened too much. There may often be heard rattling or wheezing noises in the chest and the more so when the face is very dusky. The nervous symptoms are well marked ; restlessness, loss of sleep and confusion of thought first come on ; then headache, giddiness, buzzing in the ears and deafness. In most cases there is delirium and the patient is beset with horrid fancies. In bad cases he lies picking the bed-clothes, twitching his hands and muttering to himself, or moaning, or he may be quite unconscious, with wide-open eyes, staring vacantly. Loss of the power of swallowing and insensibility are bad signs and generally precede death. The urine is passed involuntarily as well as the motions, so that great cleanliness has to be observed. The duration of typhus may be from three to twenty-one days, but about fourteen or fifteen days is the average time ; if a case live more than this period, it will generally recover. The termination in recovery is sometimes quite rapid and the tongue will clean, the temperature fall and the delirium cease in a day or two ; but generally the improvement is more gradual and lasts over three or four days. Unlike typhoid fever, there is no relapse, so that when once the temperature has come down, the best hopes may be entertained ; nor is the patient liable to peritonitis or perforation of the bowel, as in typhoid fever. Habits of intemperance increase the danger in those attacked ; corpulent people supply worse cases than thin ones ; black people more than white and those who are overworked and have mental worry, etc., have the disease with the most severity.

TYPHUS FEVER, TREATMENT OF

The patient must be placed in a well-ventilated and large room, but draughts must be avoided ; he should have his bed so situated that the light from the window will not fall on his face, as this is annoying. All curtains, carpets and bed-hangings should be at once removed ; the bed should not be too soft and a draw sheet or macintosh must be put under the patient. He should not be allowed to exert himself in any way, but try to husband all his strength. The greatest cleanliness must be observed and the excreta removed at once, Condy's fluid or chloride of lime being mixed with them. Any soiled linen must be put in a tub of water, in which is some Condy's fluid. Bedsores are very liable to form on the back and so the nurse must always be on the look-out and try to prevent them from arising by smoothing the sheets, drying the patient and rubbing brandy or balsam of Peru over the part ; it is better still to have a water-cushion or a water-bed. The skin may be sponged down with tepid water, the nurse drying and sponging one part at a time, so as to prevent any undue chill to the surface from exposure ; this relieves the patient and partly removes that disagreeable smell so common from the skin in typhus fever. None but the nurse and doctor should see the patient ; all noises must be stopped and great quiet enjoined ; at night-time there may be a small light in the room, placed so as not to disturb the patient. Milk must be the chief article of diet and is best given cold ; an egg or two may be beaten up in it and two or three pints of milk may be given in the twenty-four hours ; this must be supplied regularly every two hours in equal quantities, and more especially at night or in the early morning, when the prostration is the greatest. Beef-tea and broths, jellies, extract of beef, custards, etc., may be given, if the patient can take them and wants them, but in very bad cases he will not ask for them. For drinks in the early stage, lemonade, cold tea, soda water, etc., may be given, but do not allow too much effervescent drink ; when the patient is very bad, the nurse will have plenty to do to get the milk down. Stimulants are very useful, but the quantity must vary with each case and be left to the doctor's judgment ; brandy is the best stimulant and may be given with iced milk ; too much must not be given at first, as it causes oppression and inability to take nutrient food ; but afterwards, in the stage of great prostration, its proper and careful administration may save the patient's life.

TYPHUS FEVER, TREATMENT OF, IN CONVALESCENCE

When the crisis is past, and the tongue clean, some boiled mutton or a sole may be given ; also jellies, light puddings, custards, etc. The stimulants may then be diminished and beer given if preferred. If, however, convalescence be retarded by bedsores, or by the formation of abscesses, the stimulants must be continued and solid food given sparingly. In some cases the mind is childish for some time after recovery. A trip to the country, plenty of good food and fresh air will complete the cure.

ULCERATION OF THE STOMACH

See Gastric Ulcer.

ULCERS

(Latin, **ulcus,** " running sore ").

Old ulcers or sores, particularly on the lower extremities, are of frequent occurrence. In almost every case the mode of dressing the sore and the proper management of the patient's general health are of much greater importance than the nature of the ointment. Old ulcers may have arisen from accidental wounds indisposed to heal, or from spontaneous boils, abscesses, or eruptions ; or they may be the natural effect of certain morbid conditions of the whole system, venereal, scorbutic, scrofulous, or cancerous. Simple ulcer is usually divided into three kinds—the purulent, the indolent and the irritable ; but as these conditions of the sore are very frequently observed in the same case at different periods, induced by irregularities in the habits of the patient, or superinduced upon the accession of some general constitutional disease, all ulcers, such as are likely to come under cognisance, will be treated under one head, with notice, however, of such peculiarities as require a difference in their mode of management.

ULCERS, TREATMENT OF

1. *Ulcer on Leg.*—In the case of an ulcer on the leg, if on examination it is found to be covered with thick, healthy-looking matter, if the edges are regular, not much or at all elevated and the granulations or new growths are small, conical and firm and not disposed to bleed upon slight pressure, and particularly if a delicate white film is seen around the edge of the sore and on the tips of the little conical granulations, these may be taken as signs that this ulcer is in a healthy condition and that some impropriety in the management must have interfered with and retarded its healing. The following is the most approved method of dressing such an ulcer. Apply first a pledget of dry lint of the size of the ulcer (for Nature, in the production of healthy pus, furnishes the sore with what is better than any salve) and apply over the dry lint a large pledget spread with simple cerate, to prevent evaporation and the consequent stiffening of the under-dressing. The evil to be dreaded from the dry pus and hardened lint is the removal of the fine film, before alluded to, from the edges of the sore and from the tips of the granulations, this delicate film being the matrix of the new skin. For the same reason do not wipe or wash the sore, the matter being the most sanative dressing and the new skin, or rather its embryo, being very easily detached. Over the large pledget it is advisable to apply a compress of linen rag and over this a calico roller, to keep all in place and to defend the sore from external violence. This healthy ulcer need not be dressed oftener than once in two days.

2. *Cup-shaped Ulcer.*—Let us now suppose the case of an ulcer that is cup-shaped, with hard elevated edges, the sore itself smooth, dry and not very sensitive when touched ; the patient is in all probability past the meridian of life and very likely the veins of the leg will be found to be swollen, or varicose in many places. Such an ulcer, if its history be inquired into, is of long standing, has probably appeared more than once to be nearly healed, the hollow having been filled up with granulations, but it has suddenly altered in its condition, the granulations, which were soft and flabby, having been speedily reabsorbed and the size of the sore having as suddenly been enlarged. Such a change is likely to occur again unless the patient is guarded against irregularities in his habits and unless the local treatment of the sore is properly conducted. If the patient is out of health, this circumstance must be attended to and every excess in diet or drink, habitual or occasional, must be carefully avoided.

3. *Local Treatment.*—The local treatment of this cup-shaped ulcer in its present state consists in stimulating the surface of the sore and in the proper application of bandages. If the hollow of the ulcer be dry and glossy, sprinkle the surface with red precipitate in fine powder and fill up the hollow with either dry lint,

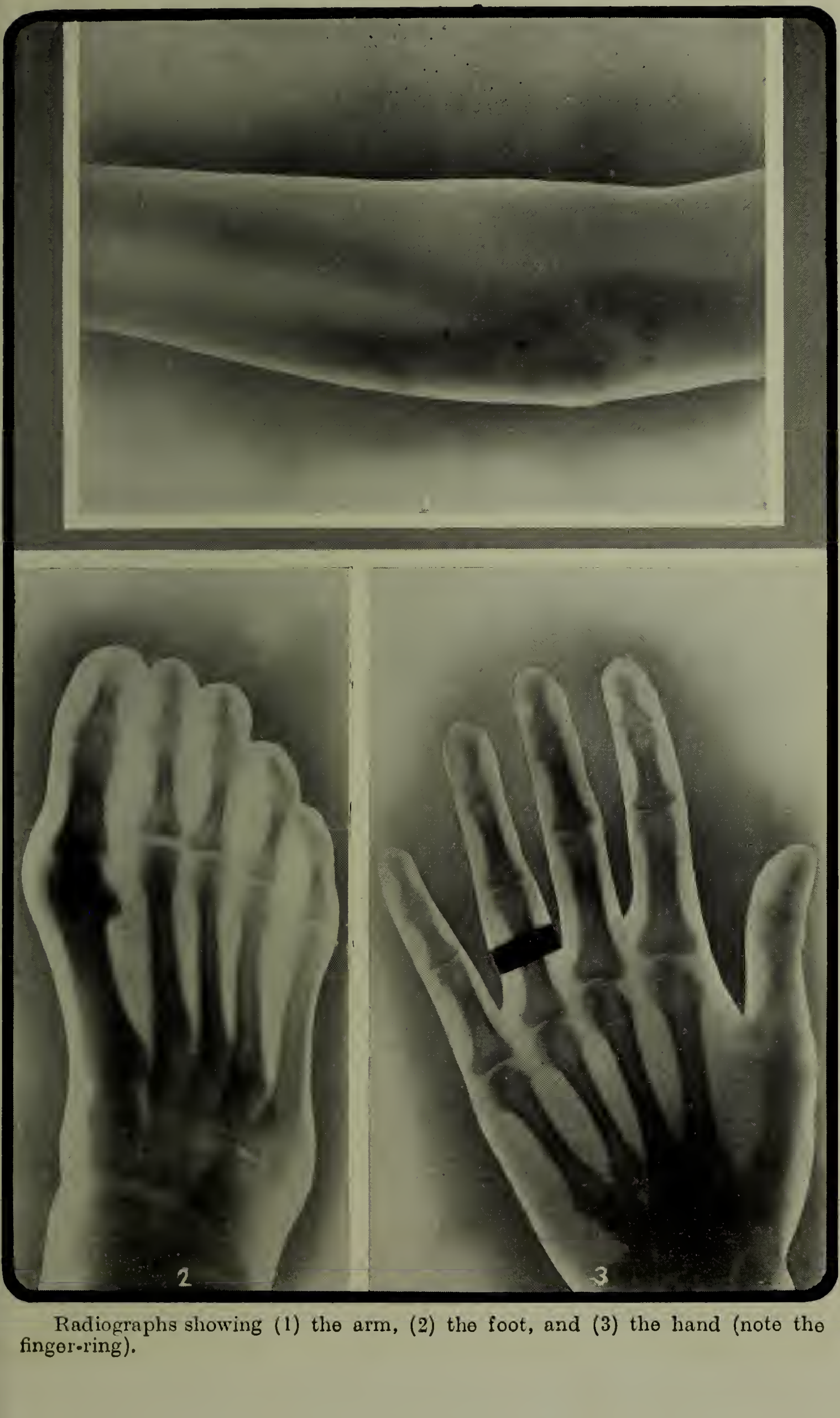
or lint spread with red precipitate ointment. If the edges be covered with hardened cuticle, remove the hard scales with the edge of a spatula and then draw the point of a stick of lunar caustic, moistened, over the callous edges and finish the dressing by the application of an adhesive plaster bandage and then a calico roller. The dressings should not be removed oftener than once in two days and, when the ulcer assumes a moist appearance, which will usually be the case after one or two such dressings, the powder may be omitted and the red precipitate ointment applied to the interior of the sore ; the caustic need not be repeated to the edges, unless they are very much elevated and indurated. Should the sore in its progress exhibit soft and broad granulations and these be disposed to bleed, apply lint moistened in a solution of lunar caustic instead of the ointment, or touch them slightly at each dressing either with blue vitriol or lunar caustic and continue the use of the same ointment, until the granulations assume a healthy appearance. These directions are of considerable importance in the management of such ulcers ; but the application of the straps and bandage is of infinitely more importance still, some surgeons trusting wholly to them, being perfectly indifferent whether any dressing be applied or not to such sores as we are now describing. Such dressings, however, as have been described above are useful, until the hollow of the ulcer begins to secrete a healthy-looking pus and to show signs of granulation, after which it is immaterial whether the dressings be continued or not.

4. *Plaster Bandage.*—The objects to be attained by the plaster bandage are, first, a firm and even pressure over the edges and surface of the ulcer ; secondly, the contraction of the sore and consequently diminution of the cicatrix, or scar, by bringing the sound skin at the sides of the ulcer into closer approximation ; and lastly, uniform and firm pressure over the whole limb, with a view to supporting and improving the condition of the varicose veins and perhaps the debilitated lymphatics also.

5. *Preparation of Plaster Bandage.*—The adhesive plaster is to be cut into straps of two inches in breadth, sufficiently long to go round the limb, and to wrap about four inches over. The sore having been carefully freed of superfluous matter—not by washing or rough sponging, but by gently absorbing it, by means of a little soft lint,—the sound skin around the ulcer having been carefully washed and dried, and the hair, if in abundance, having been removed by a razor, the middle of the strap is to be applied to the sound part of the limb opposite to, and a little lower than, the inferior part of the ulcer and the ends drawn over the sore with as much gradual extension as the patient can bear ; other straps are then to be applied in the same way, each above and in contact with the other, until the whole surface of the sore and the limb at least two inches below, and two or three inches above, the diseased part are completely covered.

6. *Calico Roller.*—The calico roller, which is to be applied above the plaster, should be from three to four inches wide and from four to six yards long, according to the size of the leg. It must be applied with great exactness, and if it be sought to excel in this piece of surgery, application should be made to a surgical friend for a practical lesson

RÖNTGEN RAY PHOTOGRAPHY.



Radiographs showing (1) the arm, (2) the foot, and (3) the hand (note the finger-ring).

or two, which will be of ten times the value of this description. The first circle of the roller should be round the ankle, as near as possible to the foot, the second and third round the foot, the fourth and fifth round the ankle again, and then others spirally round the leg up to the knee, each circle at about three-fourths of an inch from the lower edge of the preceding, turning down the upper edge of the roller for about half the circumference of the leg in the three or four circles that surround the calf, in order to make the roller lie smooth at this part. Once in two days is often enough to remove the dressing ; but should the ulcer, from irregularity of diet, intemperance, or other cause, begin to assume a less healthy appearance, and yet not sufficiently so to require an alteration in the local treatment, and should the discharge in consequence become considerable, should it be thin and offensive and particularly should the weather be hot, remove the dressings daily.

7. *Flannel Roller.*—When, from any cause, it is not desirable to make use of the adhesive bandage, flannel will be found preferable to calico ; and the ulcer having been first dressed, as directed above, and covered with a compress of linen rag, the dresser may trust with confidence to the firm and even pressure of the flannel roller.

8. *Difference of Treatment.*—Ulcers sometimes assume a less healthy appearance than what has been described and require, at least for a time, a very different treatment. The margin, instead of being circular, becomes irregular and the ulcer extends itself by the encroachment of this irregular margin upon the sound skin in a serpentine line, perhaps only on one side of the ulcer. If the margin is elevated, it is at the same time undermined ; the discharge is thin and usually copious, sometimes bloody and often offensive in smell. If the ulcer be large, its surface consists of various distinct hollows or cavities ; the granulations, if any, are apt to bleed ; and the pain of such a sore is very considerable at all times, usually aggravated, however, in the evening or at night.

ULCERS, TREATMENT OF, LOCAL

Every ulcer may, by mismanagement or by irregularities in the habits of the patient, be made to assume for a time the peculiarities described under section 8 of the preceding article. For this reason the majority of cases admitted into hospitals are, at the time of admission, of this description and require, for a few days at least, the appropriate treatment of this species of ulcer ; but there are some cases also which from peculiarity of constitution assume this character and require the peculiar treatment of irritable ulcers throughout their whole progress. The local treatment of such sores is by anodyne fomentations and poultices ; the constitutional by anodynes and alteratives. A decoction of poppies makes the best fomentation, and linseed meal brought to the proper consistence by a strong decoction of poppies, the best poultice. These sores should be washed at every dressing with a sponge and some of the warm fomentation ; if the smell is offensive, a rag wetted in a solution of chloride of sodium may be laid immediately over the sore ; or, if this give pain, over the poultice. These are the appropriate dressings till the ulcer reassumes the character of the healthy, or of the indolent sore described in the preceding article, when the treatment will be as recommended for them respectively; but in some cases the irritable character still remains unaltered and the peculiar treatment here recommended, namely, the anodyne fomentations and poultices, must be persevered in till the cure is completed.

ULCERS, TREATMENT OF, CONSTITUTIONAL

The constitutional treatment consists in giving opium or henbane every night, with or without calomel or blue pill; and rhubarb with soda, and perhaps quinine during the day, according to the constitutional peculiarities, which professional judgment can alone appreciate.

ULNA,

the larger of the two bones that form the forearm, or that portion of the arm between the elbow and the wrist. The ulna and radius constituting the forearm are connected with the humerus by a hinge-like joint, which admits readily of flexion and extension, but not of rotation; and, as the articulation is of a peculiar construction, it is rarely dislocated. The movements of pronation and supination, or turning round the hand, are effected, not by the elbow-joint, but by the radius moving upon the ulna by means of joints formed for this purpose.

UMBILICAL HERNIA

See HERNIA, UMBILICAL.

UNWELL, CEASING TO BE

One of the most presumptive signs a woman has that she is with child is the cessation of the monthly flow; it is also the first to manifest itself. Taken alone, the stoppage of the monthly discharge is not sufficient proof that pregnancy has occurred; but if a woman who has been menstruating regularly up to the time of her marriage ceases to be unwell shortly afterwards, it is presumptive evidence of her having conceived. A woman may, however, be unwell for one or two periods after conception has occurred; or, on the other hand, the monthly discharge may be in abeyance from the presence of disease, as in a woman suffering from consumption. Again, cold or severe mental emotion may produce the same effect.

URÆMIA

(Greek, **ouron,** "urine"; **haima,** "blood").

When the urine ceases to carry off all the waste material, this accumulates in the system and, becoming poisonous, sets up serious symptoms. Such a condition may occur in Bright's disease and other kidney troubles, in affections of the urinary organs, and occasionally is met with in the later stages of pregnancy. Severe, obstinate headache, impaired vision, deafness and ringing in the ears, vomiting, difficulty of breathing, convulsions, drowsiness, delirium and unconsciousness embrace the worst symptoms. The effort should be directed to bring the kidneys into working order and to relieve them of all unnecessary strain. Poultices or hot fomentations should be applied across the loins, the bowels freely relieved and copious perspiration induced by a hot bath and plenty of blankets. No intoxicants whatever should be given, but hot milk in some quantity may be administered. When the kidney trouble has been got over, the prime cause must then be dealt with.

URINE

The specific gravity of urine on

the average is 1·020, pure water being taken as 1·000; but this will vary with the time of day and the amount of liquid food absorbed into the system. The quantity of urine passed during the twenty-four hours varies a good deal, but on an average may be estimated at forty to fifty ounces. An average healthy man excretes about fifty ounces, or 24,000 grains of water in a day.

URINE, COMPOSITION OF

In this are dissolved 500 grains of urea and from ten to twelve grains of uric acid. The following table shows the composition of healthy urine :—

				In 100 parts of solid matter
Water			956·80	
Solid matters, 43·2	Organic matters, 29·79	Urea	14·23	33·00
		Uric acid	0·37	0·86
		Alcoholic extract	12·53	29·03
		Watery extract	2·50	5·80
		Vesical mucus	0·16	0·37
	Inorganic matters, 13·35	Chloride of sodium	7·22	16·73
		Phosphoric acid	2·12	4·91
		Sulphuric acid	1·70	3·94
		Lime	0·21	0·49
		Magnesia	0·12	0·28
		Potash	1·93	4·47
		Soda	0·05	0·12

In addition, the urine contains carbonic acid, oxygen and nitrogen in a gaseous form, but very small quantities of the two latter. Urea is a nitrogenous product and nearly all the nitrogen which daily enters the blood in such food as the proteid compounds passes off in the urine after being used up in the system. An animal diet increases the amount of urea and a vegetarian diet diminishes it.

URINE, CONDITIONS OF

Through the kidneys, with the urine, are drained away many of the impurities of the blood and any excess of its watery ingredients. The chemical composition of the urine is constantly shifting and even with healthy persons there are continual changes in the colour and quantity of that daily passed. The normal colour is like light amber, or wheat straw, and the normal daily quantity from thirty to fifty ounces. It is always somewhat acid in health and will turn blue litmus paper red; it is most acid just before eating and less so during the process of digestion. It has a peculiar odour and saline taste. The conditions of its excretion vary :—

With age, in children the quantity in proportion to the weight of the body is nearly twice as great as in adults.

With sex, the quantity is somewhat more in females than males.

With season, less is passed in warm, dry weather than at other times, for the reason that perspiration is profuse and urea passes off by the skin.

With time of the day, it is more deeply coloured in the early morning, paler during the forenoon and deeper again in the afternoon and evening.

With differences in food and drink, many vegetables, acid fruits, liquids, etc., increase the quantity and produce other changes.

With violent exercise, it undergoes certain chemical changes.

With mental exertion or emotion,

as in over-study, anger, fear, hysteria the quantity of urine passed is sometimes suddenly increased.

Variations from the normal condition for a day or two are of no importance, but should they be frequent and long-continued, and especially if accompanied by other symptoms which do not occur in health, attention should always be given to the matter. In different illnesses the variations from a healthy state should be carefully noticed and reported ; very important indications of the presence and progress of the disease are supplied in this way.

URINE, EXAMINATION OF

In preserving urine for examination by the physician, the nurse should very carefully wash the bottle in which she is to put it, using only clear glass, and washing it first in warm and then in cold water, until it is perfectly clean. The cork should be new, or washed and scraped. A label should be attached with the date and hour at which the urine was passed and a note as to whether it was shortly after eating or not. The nurse must also tell what was eaten and what the mental condition of her patient was at the time and whether any pain was felt, or there was any difficulty in passing urine.

URINE, INCONTINENCE OF

See Incontinence of Urine.

URINE, RETENTION OF

See Retention of Urine.

URINE, SUPPRESSION OF

See Suppression of Urine.

URINE, VARIABLENESS OF, IN QUANTITY, ETC.

The quantity and composition of the urine vary greatly, according to the time of day, the temperature and moisture of the air, the fasting or full condition of the alimentary canal and the nature of the food. The urine is lighter and much more abundant in cold weather, because the pores of the skin are measurably closed and a large portion of the water which would have passed from the body in the shape of perspiration is denied egress and seeks an outlet through the internal organs. But if a man work several hours together in a heated apartment, or in any other circumstances in winter-time, by which the "perspiration pours off" his body, then the urine will be scant and high-coloured, that is, inclined to a red or yellow colour. In the summer when the perspiration "streams from every pore," comparatively little water is left to be passed through the bladder and this is highly-coloured and heavy, and, being so, the call to urination is frequent. But suppose in warm weather, during the hottest day of summer, a person eats a whole water-melon, the urine will be as copious and as light-coloured as in winter.

URTICARIA

(Latin, **urtica**, "stinging-nettle").

This disorder, which is commonly known as nettle-rash or hives, is an acute affection often appearing in the course of a few minutes. Raised patches, called wheals, of various shapes appear abruptly on different parts of the body, no part being exempt from their invasion. Their arrangement is irregular. Their colour is usually whitish, or pale at the top and red at the base, which is surrounded by a ring of reddened skin, which shades off into the natural colour. To the touch they are sometimes firm. They are often evanescent, fading as quickly as they came and are often seen to disappear and reappear in other parts during the same attack. No alteration of the skin is seen after the wheals have disappeared. Urticaria is invariably attended with most annoying stinging and burning of the affected skin. The irritation is often almost intolerable. Scratching and rubbing aggravate the symptoms. The duration of the acute form is from a few hours to a day or two and is greatly influenced by the removal of the exciting cause. Certain persons are much more prone to this affection than others and external irritants or internal derangements that produce in some persons a slight local inflammation of the skin or a simple erythema, will in others give rise to nettle-rash. Among the external irritants which not infrequently cause it may be mentioned fleas, bed-bugs, mosquitoes and other insects, the jelly-fish, so common in certain seasons in the sea and the stinging-nettle, which last gives to the eruption its name.

URTICARIA, CAUSES OF

By far the greater number of cases arise from internal causes ; these are chiefly referable to disturbances of the digestive organs. Indigestion from over-eating highly seasoned dishes and excess in drink often cause an outbreak. Certain articles of food, many of which are in season in summer and are esteemed as delicacies, are especially apt to produce this affection. Such are sea-food—crabs, lobsters, clams, oysters, fish ; some of the small fruits, as strawberries and raspberries ; pork and sausages and some other articles. These things are eaten with impunity by the vast majority of persons ; it is therefore evident that they produce nettle-rash in the minority by reason of some personal peculiarity. A sudden checking of the perspiration has been, in a few cases that have come under observation, the only assignable cause. Intense emotion has been also assigned as a cause.

URTICARIA, DIET IN

Urticaria, or nettle-rash, is one of the most difficult diseases in which to regulate the diet, for while most articles can be taken with impunity, some particular one, perhaps the least suspected, may be the cause of the trouble. The articles most commonly injurious are shell-fish, also stale fish, mushrooms, bananas, strawberries, raspberries and pine-apples ; but in obstinate cases other articles may be the cause. Because in certain persons shell-fish may cause this eruption, it is a mistake to think that shell-fish are to be avoided in all skin diseases. On the contrary, they are very constantly ordered to be taken by doctors, who consider them beneficial in most diseases of the skin as a substitute for meat, of which we eat far too much.

URTICARIA, TREATMENT OF

It is obvious that successful treatment will depend upon a prompt recognition of the cause. As a rule this will be readily discovered. Inquiries into the nature of food recently taken should be instituted. It may be necessary to administer an emetic, especially if the attack be severe, or the suffering great. A free movement of the bowels should be brought about as soon as possible and laxatives employed from time to time, during the attack, if protracted. For this purpose, nothing is better than magnesia or the effervescing citrate of magnesia. The alkaline and aperient effervescing mineral waters are useful and grateful. There is usually decided acidity of the stomach, which should by no means be overlooked in the management of this disease. A little bismuth will be found beneficial in removing this condition. Local remedies are very important and must be used with an energy proportionate to the severity of the symptoms. They are most conveniently applied in the form of lotions or baths ; among the former are vinegar and water and alcohol and water. For this purpose, whisky or bay rum may be used, soda, a drachm to half a pint of water, and weak solutions of carbolic acid. The baths most useful are those containing carbonate of soda or bicarbonate of potash, of the strength of three ounces to thirty gallons ; these substances may be combined with advantage. Bran and starch baths are also useful in allaying the stinging and burning. Acid baths are often grateful, the strength being half an ounce of nitric or sulphuric acid to thirty gallons. The temperature of the bath should be warm enough to be agreeable and the patient should remain in it not less than fifteen or twenty minutes. The strength of the bath will vary in accordance with the patient's skin. The above directions may be regarded as meeting the requirements of the average case Acute nettle-rash is likely to recur from time to time, unless the exciting cause be sedulously avoided.

UVULA

See PALATE.

VACCINATION, COURSE OF

As a rule, the operation of vaccination is performed in boys upon the left fore-arm, just below the elbow ; in girls upon the arm, a little below the shoulder, this latter difference being a concession to fashion, at the risk of slight but positive additional danger to the infant. In the United Kingdom and on the Continent, two, three, or more punctures, or groups of scratches are made, and observations seem to indicate that a greater security is thus ensured against smallpox. A few scratches on the outer aspect of the arm, midway between the shoulder and the elbow are to be made and then the lymph carefully applied. The arm should be allowed to dry thoroughly before being covered. If the vaccination succeed, there is nothing visible, except a slight trace of the wound, till the third or fourth day after the operation, when a little redness may be detected ; on the fifth a small vesicle will be discovered ; this undergoes enlargement and on the following day (sixth) is surrounded by a narrow red line ; on the seventh day the vesicle is well formed of a round or oval shape ; on the eighth and ninth the red border extends and the central vesicle enlarges ; on the tenth or the eleventh day declension has begun and by the twelfth a pustule, with a scab, has resulted. Gradually this darkens, becomes dry and separates. The lymph used should always be had from an absolutely trustworthy source and when perfectly satisfactory lymph cannot be obtained the vaccination should be postponed. By the Vaccination Act of 1907 conscientious objectors to the practice were enabled to send a statutory declaration to that effect to the vaccinating officer in order to obtain exemption. This measure was rendered necessary to protect the objector from the petty persecution of the magisterial bench and even from some stipendiary magistrates. *See* SMALLPOX.

VARICELLA

See CHICKEN POX.

VARICOSE VEINS

(Latin **varix**, "a dilated vein").

From a variety of causes the veins in certain parts of the body may become distended. The blood in such situations tends to accumulate and stagnate and the veins grow much swollen. When this condition arises the veins are known as varicose. The parts chiefly affected are the legs and feet, though other parts may be involved. Weak circulation (pointing to some degree of heart disease), tight lacing, constipation, pregnancy and anything calculated to constrict the flow of the blood are contributary causes, but the commonest and most conspicuous is the habit of standing for a prolonged period on the feet. Hence shop assistants are particularly liable to the affection. As a rule, it is only the superficial veins that are dilated, the more deeply-seated veins being safeguarded by the muscles in which they lie. The veins in severe cases stand out like knotted ropes. The pain is acute and there is a constant sense of fatigue. If neglected, the congestion may become so severe as to break down the skin and give rise either to copious bleeding or to an ulcer. This is a condition in which prevention is better than cure. In fact, if it has been allowed to develop to a serious extent cure is practically impossible. When, therefore, the veins are noticed to be enlarging elastic stockings for the legs and elastic bandages for other parts should at once be worn. These supports may be removed at night after the patient has gone to bed, but must be put on in the morning before rising. At the same time the practice of long standing must be given up for good, the bowels should never be allowed to become costive, and exercise should always be moderate, while the system must be supported by wholesome and nutritious food and tonic medicines if necessary. When these precautions have been taken there is nothing in the varicose state that need give the sufferer any anxiety. Should hæmorrhage set in it must be promptly attended to. Happily in most instances, the treatment is simple. The patient must lie down and, the leg being raised and supported, a friend will adjust a pad to the bleeding point and secure it in position by means of a bandage. Should the bleeding not be thus controllable, the doctor must be summoned without delay.

VARIOLA

See SMALLPOX.

VASELINE,

a petroleum jelly, discovered by Robert A. Chesebrough and introduced in 1871. It is a preparation of the heavier portions of petroleum, in a highly concentrated form and greatly refined, all non-essential matter having been removed by careful and exhaustive filtration. It contains no animal or vegetable fats, no chemicals are employed in its manufacture and it is a mineral product pure and simple. Being tasteless and odourless, it can be taken internally without nausea or other sense of unpleasantness and is of great service for external application, not only in the toilet, but also as a lubricant, emollient and ointment. It has thus a wide sphere of usefulness in the sick-room. Its medicinal preparations are numerous. Pure, it is of value in cough, cold and pulmonary complaint; combined with the concentrated extract of capsicum (Capsicum Vaseline) it acts as a counter-irritant without blistering and can be applied instantaneously; blended with 3 per cent. of carbolic acid (Carbolated Vaseline), it forms an excellent antiseptic dressing for wounds, cuts, barber's itch, bites and stings of insects; mixed with camphor (Camphorated Vaseline), it is an efficient remedy in rheumatism, gout, gathered breasts and piles; with borax (Borated Vaseline), it is a specific in catarrh, and a valuable antiseptic ointment; with menthol (Mentholated Vaseline), it is very serviceable in nervous headache, sore throat, neuralgia, eczema and croup; with oxide of zinc ointment it is healing in eruptions, sores and wounds; Arnicated Vaseline is effective for bruises where the skin is unbroken; Salicylic Vaseline is used for chilblains and offensive-swelling feet, while Vaseline Camphor Ice is very efficacious in sunburn, chapped hands and irritations of the skin. The medicinal forms of vaseline are put up in collapsible tubes of pure tin and are thus kept sanitary and thoroughly sterilized.

VEGETARIANISM

The following is a summary of the physiological arguments which have been brought forward in favour of vegetarianism by its supporters:—

First, what are the diseases by which the rich are chiefly attacked? Those which stand in close relation to gout, described as strumous, lithic-acid, and gouty diseases, due to imperfect assimilation of the albuminous principles of food; that is to say, to an excess in flesh diet. Next, what classes of men recover best from wounds and severe accidents? Much important testimony affirms it is those who eat least of flesh meat. Eminent surgeons testify that in this respect the Indians and the Chinese far surpass the English soldiers, and attribute it to their vegetable regimen. Thirdly, it is claimed that vegetarians have more exemption from the attacks of epidemic diseases than flesh-eaters. Fourthly, it is admitted by physiologists in general that the cases of extreme longevity are almost solely found among vegetarians. Of course if vegetarian food is of critical importance, one must have been a vegetarian from childhood. It is ridiculous to expect that by adopting this practice late in life a man can thereby secure length of days; yet he may somewhat increase his years, since the diet itself suffices to cure many maladies, probably by the greater purity which it gives to the blood. Fifthly, fruit, which is presumed to have been the food of primitive man, is to him peculiarly medicine as well as food. Sixthly, to pass to the region of comparative anatomy and physiology, it is contended that the interior organs and teeth of man show him to have been made a frugivorous animal. To this day, however, it is often said that our canine teeth show us to be made for tearing flesh. That this is a gross error is no new discovery. "Linnæus, Gassendi, Ray, Cuvier, Thomas Bell, Lawrence, equally with Sir Richard Owen, avow our teeth not to be canine, but to be nearest to apes' teeth. Their fangs are indeed larger than ours and well adapted to crack strong nutshells;

but none of them in a state of nature eats flesh. . . . A close comparison of the digestive organs in man with those of the domestic animals on the one side and of the carnivora on the other shows distinctly that his organs are intermediate, as are those of the apes. The entire argument is very extensive. Mr. John Smith develops it in his *Fruits and Farinacea* ; here it can only be pointed at. He admits that art and the use of fire make flesh tolerable to us as food, but denies that that which art enables us to do can ever thereby become normally necessary, or tend to so great robustness as the use of that food to which our physiology and anatomy direct us. The mediate place between herbivorous and carnivorous animals is denoted by the epithet frugivorous. This is the place of man, also of the apes and monkeys ; apparently, too, of the bear and the pig. The horse, also, has some approximation to the human organs, perhaps, because grain is a food so well suited to him. Seventhly, in detail certain peculiarities are alleged, to which a reader (if he concedes the facts to be all correct) will give what weight he thinks they deserve. It is said that no carnivorous animals sweat, but all herbivorous animals sweat ; and since man sweats, this allies him more closely to the herbivora. It is further said that in the carnivora the salivary glands are comparatively small, in the herbivora very large ; and the reason, too, is plain : the herbivora masticate their food with their broad grinders and need saliva for the operation ; but the carnivora never grind food—they have no grinders and they cannot masticate. Now, in all these points, man resembles the herbivora."

VEINS, THE

(Latin, **vena,** " blood-vessel ").

The very small tubes in which the capillaries end are called veins. The arteries becoming smaller and smaller, end in the capillaries ; and the capillaries becoming gradually larger, end in the veins, which, in their turn, gradually become larger and larger until they join the main large trunks or pipes which carry the blood back to the heart. Thus the arteries carry the blood away from the heart to the capillaries. After the blood has passed through the capillaries, it passes through the veins and returns to the heart. The veins are tough-walled tubes or pipes and are remarkable inasmuch as they possess valves or cuplike folds of their lining membranes so arranged that, while they allow the blood to flow towards the heart from the capillaries, they will not allow the blood to flow back from the heart to the capillaries. The blood can only go in one direction—towards the heart.

VENEREAL DISEASE

See SYPHILIS.

VENTILATION

(Latin, **ventus,** " wind ").

The great remedy for impurities of air indoors is ventilation and the best method of accomplishing this has been for many years one of the great objects of sanitarians. It is obvious, however, at the outset, that the air of an inhabited room cannot be kept as pure as the external atmosphere, so that the object of ventilation must be only to reduce the impurities of respiration to such an extent that breathing them into our lungs again will not be manifestly detrimental to health. About $\frac{3}{100}$ of one per cent. of carbonic acid is all that we should allow the air of our dwelling-houses to contain and, in order to keep the ratio of the carbonic acid and its associated animal impurities down to this limit, it has been found by experiment that it is necessary to supply three thousand cubic feet of perfectly pure air each hour for every adult person who is vitiating the atmosphere of a room by breathing it. This amount of air would fill a chamber ten feet wide, ten feet high and thirty feet long ; so that if we remember that every man in a crowded theatre, for example, ought to have three such roomfuls furnished to him during an ordinary three hours' performance, we begin to realize what an important consideration is the due ventilation of halls for public assemblages, and why so many sensitive persons, especially women, feel oppressed, suffer from violent headache, etc., or even faint away towards the close of a lecture or performance before a crowded house. In such cases, too, the gaslight or other sources of illumination (except the electric and oxy-hydrogen light) aid very much in rendering the air impure, since it has been calculated that one gas-burner, consuming three cubic feet of gas per hour, produces about as much carbonic acid as would the breathing apparatus of ten men in the same time.

VENTILATION, EFFECTIVE MEANS OF

A simple and effective apparatus for ventilation consists of a channel near the ceiling made to pass through the wall. The inside opening may have a lid controlled by a cord and pulley, by which the admission of air can be regulated. The ventilating appliances should be graduated in size and number according to the requirements of the building. Ventilation by double windows is strongly recommended for large hospitals. By this plan a free supply of air is obtained from without, by its passage through a large opening in the upper division of the outer window and a metal rose in a pane of the inner one. Draught is in this way avoided and, moreover, the chill of the fresh air is diminished by passing through the space between the two windows and the metal rose of the inner one, the temperature of which will correspond nearly with that of the interior of the apartment. In summer no better ventilation is required than can be furnished by freely opening the doors and windows. The registers of furnaces and stoves should not be kept closed and fire-places and chimneys, after a thorough cleansing, must be left free to give circulation to the air, without any obstruction from bags of shavings, fancy paper aprons, fireboards and metal fixtures. Fanlights are good ventilators in summer. Iron gates of open structure, or even Venetian blinds, where security from intrusion will permit, are not only, if tastefully made, ornamental, but may be advantageously used, in order to admit air, as occasional substitutes for the solid and impermeable front doors, on the outside of which they may be conveniently placed.

VENTILATION, FLORENCE NIGHTINGALE ON

In her *Notes on Nursing* Florence Nightingale has the following remarks on ventilation :—" With a proper supply of windows and a proper supply of fuel in open fireplaces, fresh air is comparatively easy to secure when your patient, or patients, are in bed. Never be afraid of open windows then. People don't catch cold in bed. This is a popular fallacy. With proper bedclothes and hot bottles, if necessary, you can always keep a patient warm in bed and well ventilate him at the same time. But a careless nurse, be her rank and education what it may, will stop up every cranny and keep a hot-house heat when her patient is in bed and, if he is able to get up, leave him comparatively unprotected. The time when people take cold (and there are many ways of taking cold, besides a cold in the nose) is when they first get up after the twofold exhaustion of dressing and of having had the skin relaxed by many hours, perhaps days, in bed and thereby rendered more incapable of reaction. Then the same temperature which refreshes the patient in bed may destroy the patient just risen. And common sense will point out that, while purity of air is essential, a temperature must be secured which shall not chill the patient. Otherwise, the best that can be expected will be a feverish reaction. To have the air within as pure as the air without, it is not necessary, as often appears to be thought, to make it as cold. In the afternoon again, without care, the patient whose vital powers have then risen, often finds the room as close and oppressive as he found it cold in the morning. Yet the nurse will be terrified if a window is opened. It is very desirable that the windows in a sick-room should be such as that the patient shall, if he can move about, be able to open and shut them easily himself. In fact, the sick-room is very seldom kept aired if this is not the case—so very few people have any perception of what is a healthy atmosphere for the sick. The sick man often says, 'This room, where I spend twenty-two hours out of the twenty-four, is fresher than the other where I only spend two. Because here I can manage the windows myself.' And it is true. In a little book on nursing, published a short time ago, we are told, that 'with proper care it is very seldom that the windows cannot be opened for a few minutes twice in the day, to admit fresh air from without.' I should think not; nor twice in the hour either. Such statements only show how little the subject has been considered."

VENTILATION, HOW EFFECTED

In our rooms, and especially in bedrooms, the fire-place should always be left unclosed and the register or damper open for ventilation. The windows should pull down from the top and a piece of wire gauze should be fixed along the open space at the top; or a pane of glass should be perforated with a wheel or rose. All rooms and especially sleeping apartments should be well aired during the day. We may ventilate a room easily by raising the lower window-sash and placing inside the frame a piece of wood three or four inches high and an inch in thickness and reaching from one side of the frame to the other. When the inside sash is brought down to rest on this piece of wood, it is thus raised three or four inches. A current of fresh air then moves inwards and upwards between the sashes and, if a piece of wood or glass sloping upwards be attached to the top of the lower sash, the current of air will be sent upwards to the ceiling, whence it will diffuse itself throughout the room. Draughts will by this means be avoided.

VENTILATION OF BEDROOM

See Bedroom, Ventilation of.

VENTRAL HERNIA

See HERNIA, VENTRAL.

VENTRICLE

The name given to various cavities of the body, as of the brain or larynx, but especially to the two muscular sacs or cavities situated at the apex or lower extremity of the heart, one on each side, each being in communication with the auricle above it and affording by contraction the means of forcing and propelling the blood into and through the arteries. The ventricles are distinguished as right and left, from their position, one being on the right side and the other on the left side of this organ.

VERTEBRÆ

The vertebræ are firmly bound to each other in such a way as to admit of flexion and extension and a certain degree of rotation, while by their solidity and firm attachment to each other great strength is secured. Some conception of this strength may be formed when we consider the enormous loads which some athletic men are able to carry on their shoulders, or raise in their hands ; the whole weight of which is necessarily borne by the vertebræ of the loins. As the space occupied by the abdomen gives large outward dimensions to this region of the body, it is only upon reflection that we perceive that the whole force exerted by the human frame in its most strenuous efforts centres in the bony column. The vertebral or spinal column or backbone is divided into the seven cervical or neck vertebræ, the twelve dorsal or back vertebræ, the five lumbar or loins vertebræ, the sacrum and the coccyx. The sacrum originally comprised five and the coccyx four distinct bones, but these are now fused in each case into one. The column therefore consists of twenty-six (originally thirty-three) bones.

VERTIGO

(Latin, **verto**, "I turn").

Vertigo, or giddiness, is a peculiar sensation in which we seem to be standing quite still and objects running round us. This commonly causes loss of balance and the patient may fall down. In a good many cases he is able to recover himself without falling, especially if he can lay hold of anything to steady himself with. In most cases giddiness depends on an insufficient or improper supply of blood to the brain. Giddiness after a severe illness, in attempting to stand upright, is probably due to impure blood supply. In other instances, the blood supply is impure from containing too much alcohol, or the product of imperfect food metamorphosis. In old people, when the vessels become hardened and unyielding, we often find giddiness a permanent symptom. Thus it is seen that vertigo is rather a symptom than a malady and a symptom, too, of very varying significance ; for, sometimes, apparently overfulness of the vessels gives rise to a kind of giddiness. If, for instance, the face is flushed and the head hot, it may be desirable to give some purgative medicine ; whereas, the kind referred to first of all as occurring in convalescence is best relieved by a tonic. The subsequent management depends on the same principle. Where there is weakness, good food and exercise are the best remedies, but saline purgatives, with some diuretic, may also be given. Not infrequently vertigo depends on or indicates brain disease, and such brain trouble may be very intractable in character. Headache is commonly associated with such vertigo. Thus, giddiness, taken by itself, may either amount to nothing beyond temporary weakness and stomachic derangement or be a symptom of a condition demanding prompt medical advice.

VINEGAR

Vinegar, in small quantities, is a grateful and salutary stimulus to the stomach, correcting the putrescency of animal food and the flatulency of vegetables. It is particularly useful when eaten with animal food of a viscid or glutinous nature, as it promotes its digestion and on this account it is commonly taken with the meat of young animals. Its use is improper in many valetudinary cases, especially in gouty persons and those troubled with red gravel, or costiveness ; in green sickness and in rickety patients and young children. Vinegar is very proper in those troubled with white gravel. It is often manufactured from oil of vitriol, diluted freely with water and flavoured with a little genuine cider or wine vinegar, to give it the proper odour. Fraudulent vinegar of this kind, if used for a long time, might bring on diarrhœa, dysentery and ulceration of the bowels. It may be detected by the absence or scarcity of the minute vinegar eels when examined microscopically, or even with a magnifying glass, and by its giving an abundant white precipitate when a few drops of solution of barium chloride are added to a suspected sample. Vinegar is frequently adulterated also with water, spirit of nitre, burnt sugar, fusel oil and acetic acid.

VOCAL APPARATUS

The human vocal apparatus—lungs, windpipe, larynx, mouth, throat and nose—may be aptly described as a musical instrument, capable of rendering shades of expression far more delicate than any that can emanate from a musical instrument, "the work of men's hands." It is emphatically a reed instrument, with bellows (lungs), pipe (windpipe), reed-box (larynx), two flexible reeds (vocal bands) and resonance attachment (throat, mouth, nose). These parts are movable upon themselves and their adjacent structures and are kept moist and flexible by a bland, lubricating fluid, continuously secreted from the glands of the delicate mucous membrane which covers and protects them.

VOICE

The voice is the sound generated in the larynx at the upper part of the air-passage, by the rapid vibration of the edges of two membranous bands, stretched transversely over the top of the windpipe from before backwards and slightly downwards. A delicate elliptic space is left between the two vocal bands and the air from the lungs, as it escapes forcibly through this contracted passage, strikes the edges of these bands with a force which sets them vibrating. The sound started in the air-tube by this vibration is the voice. During ordinary respiration these vocal bands are widely separated behind, so as to present a large triangular space between their edges for the uninterrupted and free passage of the air ; and they separate a little more during a deep inspiration and move slightly towards each other during expiration. In sounding the voice, however, as above stated, the vocal bands are brought together posteriorly to the middle line and held there as long as the sound is being made; separating again when a deep inspiration is to be made, the process being repeated as vocalization is continued. It is thus that the ordinary expiratory current of breathing is utilized in the normal production of the voice. A vocal sound can be produced by the inspiratory current likewise, if a special effort is made to do so, as is sometimes practised by ventriloquists; but the sound is rough and disagreeable and the effort soon becomes tiresome and difficult.

VOICE, VARIETIES OF

Four chief varieties of voice are recognized in vocal music or utterance—two in the voice of the male and two in that of the female. These are the bass and tenor, and the contralto and soprano, respectively. The peculiarity depends in part upon the natural pitch of the voice and to a much greater degree upon its timbre or quality. The physical cause of this difference in the true character of the male and female voice, or of the two varieties in either sex, is not understood. Here size of the larynx does not account for it, inasmuch as a small male larynx does not furnish the soprano or contralto quality, nor a large female larynx produce a tenor or bass voice. The voices of young boys, before puberty approaches, approximate the character of female voices.

VOMITING

(Latin, **vomo**, "I throw up").

Vomiting means the ejection of the contents of the stomach upwards instead of into the bowel. The act is a complex one and seems due to two factors, namely, contraction of the walls of the stomach itself and contraction of the abdominal walls, the contents of the abdomen thereby in their turn pressing on the stomach itself. The causes of vomiting are very various. Irritation of the stomach itself, whatever be its cause, will give rise to ejection of its contents; but vomiting occurs in many other maladies. When gall-stones or small urinary calculi are passing there is usually sickness and vomiting; in Bright's disease there is vomiting, too, and in the maladies of the brain among children vomiting is an invariable symptom. Vomiting is a very distressing affection and when it proves obstinate or severe, calls for the immediate assistance of art in order to its being relieved. To arrest vomiting, ice is a capital remedy; prussic acid, too, in very small doses of two or three drops, is a favourite remedy with some. Bismuth is good, especially with small doses of opium. In all cases the quantity of the remedy used should be small. Bulky preparations will most probably be rejected.

WAKING UP IN THE NIGHT

If a person chance to wake up in the night for two or three times about the same hour and cannot fall to sleep again very readily, this will rapidly become a habit, with the result that if an hour or more be lost in this way, it must be made up by longer sleep in the morning, or the system will be deprived of its healthful amount and injury will certainly result. The remedy is to retire to bed two or three hours later, for two or three nights in succession and be waked up at the desired time for rising. Meanwhile avoid sleeping in the daytime. Thus the time for waking up during the night will be bridged over and the habit be promptly broken up.

WALKING

There is no exercise so natural to us, or in every respect so conducive to health, as walking. It is the most perfect in which the human body can be employed, for by it every limb is put in motion and circulation of the blood is effectually carried on throughout the system. Both body and mind are enlivened by walking and, even when carried to an extreme, it has often been found highly serviceable in nervous diseases. This salutary and most excellent exercise is in the power of all persons having the use of their limbs and can be adapted, in degree and duration, to the circumstances and wishes of every person. It was an old rule, "after dinner sit a while, after supper walk a mile"; but this adage is not consistent with the hours kept in modern times. When supper, however, was very early, those who resided in the country might with advantage walk two or three miles before going to bed. It is said that such a walk brought on a gentle sweat, favourable to repose, and that next morning they awoke with a clear head and found a refreshment from their sleep of which the indolent had no idea. An objection to walking is that it brings into play chiefly the lower limbs and the muscles of the loins and affords little scope for the play of the arms and muscles of the chest and so is insufficient of itself to constitute adequate exercise. Hence arises the advantage of combining with it movements performed by the upper half of the body, as in rowing a boat, fencing, cricket, golf, bowls, lawn tennis and other sports. Such exercises have the additional advantage of animating the mind and, by increasing the nervous stimulus, making exertion easy, pleasant and invigorating. Nature, indeed, has shown her intention that the upper part of the body should partake in the exercise of the lower, by rendering it impossible for us even to walk gracefully without the arms keeping time, as it were, with the movements of the legs. Walking excursions, in pursuit of mineralogical or botanical specimens, or in search of scenery, combine in their results all the advantages which well-conducted exercise is capable of yielding. While these walking excursions are proportioned in extent to the constitution and previous habits of the person, nothing can be more beneficial and more delightful. But not a season passes in which health is not sacrificed and life lost by young men imprudently exceeding their natural powers and undertaking journeys for which they were totally unfit. It is no unusual thing for young men, still weak from rapid growth and perhaps accustomed to the desk, to set out in high spirits, at the rate of twenty-five or thirty miles a day, on a walking excursion and, as the inevitable consequence of carrying exercise for days in succession to that degree in which waste exceeds nutrition, to come home so much worn out and debilitated that they never recover. The wisest plan is to map out a walking tour before leaving home, arranging the places at which each day's walk shall be suspended. It is safest to begin with a moderate programme of, say, eighteen or twenty miles for the day, working up gradually to not more than twenty-five miles.

Three miles an hour will be found the most suitable average both for seeing the country and avoiding fatigue. Pedestrians will do well to confine themselves to two meals a day—"high" breakfast in the morning and "high" tea at the hotel where it is proposed to spend the night. In midsummer the light will allow of a gentle stroll after tea. The baggage should be limited to the irreducible minimum. By all means secure the society of a congenial companion on a tramp.

WALKING, FIRST LESSONS IN

Many children are given lessons in walking by people taking hold of one or both hands. This will, however, be better attained by putting the hands round the child's waist and in this manner giving it support when it is necessary ; for the great lesson that the child has at this time to learn is how to maintain its equilibrium and, so soon as this difficult task has been accomplished, the little one will walk without difficulty, the muscles will strengthen by use and the legs, which were at first bent and not very well adapted to walking, will gradually acquire firmness and spring. After a moderate amount of practice, if the child has been left to itself and not frightened by those around about, it will be able to walk with ease. When it begins to walk about, it should be provided with little boots, so made that the rapidly growing foot shall not be stinted of room and suffer in its growth. The movement it inevitably undergoes in the course of its management and the dandling it is subjected to in the arms of a handy and lively mother or nurse, are the best exercise for the infant. No artificial contrivances, like baby-jumpers or other labour-saving machines, are safe substitutes for the gentle handling of a woman, whose nice tact enables her to adapt her every movement to the requirements of the child. The quick sympathy of the two binds them, as it were, into a common life, each feeling of the one responding almost unconsciously to the touch of the other. Thus the action of a healthy babe and vigorous mother, animated by a mutual instinct of delighted companionship, will express itself in just such lively movements as are best for infant exercise. As soon as the child is strong and enterprising enough to leave its nurse's arms and try its own unaided powers of locomotion, it should be allowed to do so, whatever may be the form of its first awkward attempts at progress. Let it roll, tumble and creep on the floor as it will, only taking care, of course, that it be not exposed to the danger of the fire, stove, or staircase. Fond mothers and ambitious nurses should repress their eagerness to set the baby upon its legs. With the power to walk there generally comes the inclination to do so and the child will ordinarily make the first effort after it has learned to steady itself on its feet, by the aid of a table, chair, or other support. Mother and nurse, therefore, need not be constantly setting up the little one, only to topple over again. This premature forcing of a child's walking powers is, apart from the obvious risk of numerous falls, liable to distort the legs and cause deformity for life. Where there is a natural tendency to such distortion, all machines for straightening the limbs should be avoided, since compression of the muscles naturally interferes with their action, the freedom of which is not only essential to the general vigour, but to the removal of the threatened deformity.

WALKING, STYLE OF

Walking with the head downwards, or with a staff or cane, promotes a sloping position and brings on an appearance of old age prematurely, not only by its effect upon the structure of the spinal column, but by throwing the weight of the body on the chest, thus compressing the lungs and diminishing their capability of receiving an adequate quantity of pure air. The blood is thus purified less and less perfectly, until the whole mass of it becomes imperfect, impure, and injurious. The following are the rules for the best style of walking :—Walk with the toes turned outwards, with the chin slightly above the horizontal line, as if looking at the top of a man's hat in front of you, or at the eaves or roof of a house. Walk a good deal with your hands behind you. Sit with the lower part of your spine pressed against the chair-back. The great thing in walking is the boot. This should not be too heavy, but should be strong, with good thick broad soles and low heels. Walking boots should always be made to lace : what are called spring sides are an abomination. A few nails are a decided improvement. Captain Barclay, the famous pedestrian who once walked a thousand miles in a thousand hours, used to bend forwards the body and to throw its weight on the knees. His step was short and his feet were raised only a few inches from the ground. Any one trying this plan will find his pace will be quickened, whilst he will walk with more ease to himself and be better able to endure the fatigue of a long journey than by walking in a posture perfectly erect, which throws too much of the weight of the body on the ankle-joints. Barclay always used thick-soled shoes and lambs'-wool stockings. It is a good rule to change the stockings frequently during the performance of a long distance and it is indispensably requisite to have shoes with thick soles and so large as to do away with all unnecessary pressure on the feet.

WALL PAPERS, POISONOUS

It has been proved by direct analysis that many of the dark-green papers, now so much in vogue, contain large quantities of arsenic, in some cases to the extent of twenty-nine grains to the square foot. This poisonous mineral, being of course rubbed off, little by little, in fine particles, mingles with the air of the room and, indeed, of the entire house, giving rise to the usual symptoms of arsenical poisoning, which, however, may readily escape reference to their true cause, just as Devonshire colic was for many years attributed to some unknown influence, until it was discovered to be due to the lead taken up from leadlined tanks, etc., in which the Devonshire farmers fermented their cider. The indications of health being disturbed by poisoning from arsenical paper are obstinate headache, sickness at the stomach and diarrhœa, but when the quantity of the poison is small, obscure nervous symptoms may for a time alone be present.

WARMTH, MATERIAL NECESSARY FOR

The heat of the body is maintained by the chemical changes which are constantly going on in it and which are necessary for its existence and growth. Animal heat is a resultant of all or of many of these various changes and transformations that never cease in the body so long as life remains. If, therefore, material must be supplied, to replace what is lost in substance and in force, it must also be supplied to keep up the warmth that is generated by the active metamorphosis of tissues. Without sustenance the body becomes cold and the greater the amount of cold the body suffers, the greater the amount of sustenance it requires. Heat is regarded as an equivalent of motive force and the food that gives off most heat is the best for giving heat and motive power to the body. The estimates thus found must, at best, be only approximate. They make no allowance for the changes that may take place in the body. Moreover, cellulose of vegetable food is indigestible, though it burns readily and evolves much heat. On the other hand, the albuminous elements of food do not give out their entire force in the body. Practically it is found that only about one-half of the latent force of food is evolved in the body. In all mechanical arrangements—such as the steam-engine—the proportion of wasted force is ten times greater than the force that is utilized.

WARNINGS OF NATURE

Business pursuits which keep the mind more or less upon the stretch for eight or ten hours daily are generally interrupted by periods of comparative leisure, so that the ill effects of constant mental effort are avoided. But most communities can point to instances of lawyers, merchants, railway and bank officers, etc., whose devotion to the affairs under their charge has spurred them on to take home their business cares at night (instead of locking them up in their office or counting-house as regularly and securely as they do their safe), and who in consequence must, after a few years of this violation of Nature's inexorable laws, retire into the country, or go abroad for a time, to remedy, if possible, a threatened softening of the brain, or attack of paralysis. The notice to abandon overwork is ordinarily served somewhat after this fashion. The business man who is practising the cruelty of overwork upon his long-suffering brain finds that his day's occupation is becoming a toil rather than a delight and the last hour grows to be a strain only maintained by a conscious effort of the will. The last row of figures, or the letters at the bottom of the file, seem interminable, while anything out of the usual routine, making demands upon the higher faculties, is shrunk from as an arduous and distasteful task. With this soon appears an exaggerated susceptibility to every trivial annoyance, the result of that irritable condition which always accompanies weakness of nerve-matter. Another warning symptom is the failure of memory, which, beginning with a difficulty in recollecting names, soon extends (if the degeneracy goes on) to a provoking forgetfulness of places and persons. Occasionally this failure of recollection takes the form of loss of consciousness of a certain event or series of events, which is as complete as though an entire leaf had been torn out of the book of memory. Such an intermittent failure of mental power should always awaken the careless subject to his imminent danger and lead him at once to reform his habits of mental and physical intemperance. We often witness also an ecstatic state of mind favoured by the condition of the brain. When a peculiar fervour takes the place of orderly activity and a person's manner is suddenly altered from his natural habit to the assumption of a style of speaking and acting out of keeping with his intelligence and vocation, it will generally be found that disease of the brain is going on. A man disposed to insanity is in great danger of losing self-control, by allowing his mind to be ardently, or inordinately, engaged on any subject, but, of course, in proportion to his estimate of the importance of the subject will be its influence on his heart and therefore it happens that some sort of religious impression is so frequently mixed up with the reveries of madness. Among the physical symptoms of impending exhaustion of brain-power, one of the most important is probably inability to sleep. Sometimes this morbid vigilance, as it is called, occurs to the extent of lying awake throughout the nocturnal hours; at others, a light, restless slumber, haunted by dreams which reproduce the waking anxieties, and consequently broken and unrefreshing, takes the place of the needful repose. When this condition of affairs has lasted for a month or six weeks, the only hope is to be found in a radical change of scene, habits, occupation and mode of life. Remember that it will not do to wait for these symptoms of over-working the brain, because, in a large proportion of cases, they arrive only after irreparable injury is done, or the mischief may be precipitated without premonition. In such instances the sinner against sanitary laws receives his first warning with his punishment, in the shape of a stroke of apoplexy or paralysis, an outburst of insanity, or an attack of softening of the brain.

WARTS

Warts are small growths involving both the external, or epidermal, layer and the papillary layer of the corium, or true skin. The hardness is due to great accumulation of the horny epithelial scales; while, if they are torn or cut on a level with the skin, we have bleeding, because the papillæ, in which are blood-vessels, project up into them. Little or nothing is known as to the cause of warts; there exists no medical reason to favour the idea of their contagiousness, since they are only outgrowths of skin. Their removal may be accomplished in several ways: sometimes they all vanish spontaneously, as by magic, in a very short time. They may be burned with nitrate of silver, nitric acid, glacial acetic acid or caustic potash; a more slow removal may be effected by daily touching with dilute acetic acid, or equal parts of dilute muriatic acid and tincture of iron. They may also be taken out mechanically by means of a small steel instrument like a sharp-edged spoon. The writer has seen many disappear after a single one was thus removed. Arsenic internally has also very considerable power over warts. The medical name for a wart is verruca: several different varieties are recognized. "It is a popular belief," says Sir Erasmus Wilson, "that the blood which flows from warts, when wounded, will cause them to grow on whatever part of the skin the blood touches ; and schoolboys who love experiments occasionally adopt this method of transplanting them, but without success. Indeed, there is no truth in the supposition ; and if a fresh crop should be produced around a wart that has been teased by a schoolboy, the fact, when it happens, admits of a more philosophical explanation."

WATER, ACTION OF, IN FOOD

The action of water in our food is very important. There would be no carrying of food into the system but for the agency of water. It dissolves everything that we take and nothing that we use as food can become nutriment that is not dissolved in water. It will not do to test this by taking things and putting them in water to see whether they dissolve and rejecting them according to that circumstance ; because food undergoes a considerable change in the stomach. It undergoes a change, to begin with, in the mouth. One of the great objects of that change is to render things soluble in water which before had been insoluble. Starch, which we cannot dissolve in water out of the stomach, is dissolved in water whenever it gets into the mouth, for the starch is changed by the saliva into sugar, and that which might have lain unchanged in water for months is so changed by the saliva of the mouth and the gastric juice of the stomach that it is speedily dissolved. Thus, when we are taking considerable quantities of dry food, it becomes absolutely necessary that we should add a certain quantity of water, so that this dry food should become dissolved. Such things as oats, barley, wheat, rice, maize and other articles of diet containing little water must have water added, in order that their starch, fat and gluten may be dissolved and enter into the system. Every pound of perfectly dry food, in fact, should be accompanied by four pounds of water.

WATER, CHARACTERISTICS OF

Speaking of the good and bad qualities of different waters, Professor Church remarks : " A drinking water should be clear and bright. The worst kind of cloudiness it can show is not that of little sandy or chalky grains, but as if half a drop of milk had been dropped into a glass of it ; this milkiness is generally a very bad sign. Then water should give, when shaken, bubbles, which rise quickly and break directly ; if they move slowly and hang about for some time, the water has organic matter in it and is, to say the least, suspicious. Again, a good water, whether it be cold or hot, has no smell, unless it be a slight earthy odour, like that of clay on which rain has just fallen. And the best waters keep free from smell when stored in clean cisterns, or kept in covered jugs or bottles. Yet some waters, which in other respects seem sound, do acquire a bad smell on keeping. These are not to be condemned on this score alone, yet it is a suspicious sign. This bad smell comes from the action of decaying vegetable or animal matter (that is, organic matter in a state of change) on the gypsum or similar substances, called sulphates, in the water. A gas—sulphuretted hydrogen—is thus formed and this gas is not only disagreeable and unwholesome in itself, but it betokens organic matter that may be of a hurtful sort in the water from which it comes. Another character belonging to waters is what we name their taste. Of course, if a water taste nasty it should be avoided, if for no other reason than for these two: (1) a water with a nasty taste is very likely to contain some unwholesome matter dissolved in it; (2) water, like all other parts of our food, should be pleasant, if it is to nourish us as much as it ought. The very purest distilled water is not pleasant or agreeable in taste, being flat and insipid. The cleanest rain-water is not better, nor is boiled water; but where a water is pretty well charged with air and especially with fixed air, that is, carbonic acid gas, it has a livelier character, which becomes very marked indeed in some natural spring-waters, which froth and effervesce like champagne, owing to the escape of some of the excess of carbonic acid gas originally present. But if much of this lively gas be found in a water, it is often accompanied by a large quantity of chalk or earthy matters dissolved by its aid from rocks, etc. Thus, a sparkling, brisk water is often a hard one, that is, full of mineral matter; and, moreover, the briskness may mask impurities and may even in part be due to them. Another character of water may be found in its colour. Ordinary wholesome waters are not only clear, so that we can see distinctly through great depths of them, but they have a pure pale-blue tint. The blue of some good deep well-waters has a greenish cast in it, but a green, a yellowish-green, or a brown colour in a water is not a favourable sign. With the exception of peaty waters, which are yellowish or brownish and often very deeply stained, and of waters which contain iron, any colour but blue or greenish blue must be taken as a sign of the presence of impurities, which are not unlikely to prove unwholesome at one time or another. The colour of water may be tested in a large white jug filled quite full, or better, in long glass tubes. If a water has a bad colour before it is strained or filtered, it may often be improved, both in look and in reality, by that treatment."

WATER, CHEMICAL TESTS FOR METALLIC IMPURITIES IN

The testing of water for metallic impurities is generally limited to a search for lead; but other metals, as zinc, copper and iron, may also, in some cases, be present, zinc being often found in waters which have been gathered on galvanized iron roofs, or stored in cisterns of the same material. The following, according to Professor Church, is a useful test for lead. This may be detected by the brown tint produced when some solution of sulphuretted hydrogen is added to the suspected water, into which a few drops of hydrochloric acid (spirits of salt) have been previously poured. Lead should always be thus looked for in rain-water, or very soft water which has been stored in a leaden cistern, or has passed through a leaden pipe; in the water which has been kept in a copper kettle or fountain, which has been soldered with soft lead solder instead of being brazed; and in soda-water and other aerated waters which have been charged with carbonic acid gas by artificial means.

WATER, CHEMICAL TESTS FOR ORGANIC MATTER IN

According to Professor Church, there is a test for organic matter in water which may be used with ease by any one. If a water contain substances derived from decaying animal or vegetable matters, such as those of sewage and manure and the refuse of plants, then such water will be found to destroy the beautiful purple colour of permanganate of potash. The reason for this is as follows: The decaying organic matters of the water attract oxygen strongly when it is presented in certain states or forms. Now, a solution of the permanganate contains much oxygen, just in the right state to be so attracted and removed. By its removal from the permanganate, the composition of that substance is altered and its colour destroyed. The more organic matter in the water, the more permanganate will be decolourized. The test may be thus applied : Fill a clean white teacup with the water to be tested. Add about sixty drops, or a drachm, of weak sulphuric acid ; stir with a clean slip of window glass ; now pour in enough of a weak solution of permanganate of potash to render the water a rich rose colour ; cover the cup with a clean glass plate. Now, if there be much organic matter in the water, the colour will go in a few minutes and more permanganate may be added and still lose its colour. It must be recollected, in using this test, that peaty matters and iron salts, which are not necessarily unwholesome, give the same result.

WATER, HARDNESS OF

The hardness of water is a great defect. In preparing articles of food by boiling them in water, it is impossible to get them so well done in hard water as in soft ; indeed, it is a good plan to boil the water first before employing it for such purposes. Greens, boiled in hard water, acquire a grey colour, as the earthy matters of the water are deposited upon them. Should they, however, be cooked in boiling water, which has also been boiled some minutes before, and especially if a pinch of carbonate of soda and a little salt be added, this defect will be remedied. To make tea with hard water it is allowable to use a little carbonate of soda, but a great deal too much is ordinarily employed. For washing the skin, hard water is not nearly so efficient as soft. For washing linen and for baths, hard water is objectionable ; the linen washed in it acquires a bad colour and the skin is clogged with useless curdy matter.

WATER, IMPORTANCE OF

Water is the second great material necessary for human existence, the first being air. It is estimated that man can live without air from two to ten minutes only ; without water for three, four, or five days : without sleep for seven days and without food for ten to fifteen days. But if water is thus an absolute requisite of life, pure water is a no less imperative necessity for health and, since the fluid is especially apt to become contaminated, as a result of its nearly universal solvent powers, it behoves us to watch with exceeding care the sources of our supply. A copious supply of water is necessary for the due performance of the functions of life. A healthy individual requires from three to five pints of water daily, nearly one-third of this quantity being contained in articles of diet and the rest being supplied to the system in the form of liquids.

WATER IN FOODS

See FOODS, WATER IN.

WATER, STORAGE OF

The storage of water in the house should carefully be attended to. Cisterns require special supervision, as there is no doubt that many deaths are due to neglect of very simple rules in regard to them. In the first place, when used for rain-water or any very pure spring-water, they should never be made of lead or lined with this metal, because the freer the water is from saline impurities the more certain it is to act on the lead and, by dissolving it, become poisonous. The proper material is slate; but brick or stone, lined with cement, or in some cases galvanized iron, may be employed. In no circumstances should the overflow communicate with a drain which serves to convey away refuse fluids from sinks, water-closets, etc. The cistern should be supplied with a tightly-fitting cover to exclude dust and dirt as far as possible; but this cover should be arranged so that it may readily be removed to allow inspection of the interior. Such inspection should be rigidly made at short intervals, as rats, mice and other vermin seek out and penetrate into cisterns in search of water and, being apt to drown in it, often cause serious illness by the decomposition of their bodies in the fluid drunk by the household. No water intended for family use should be preserved in a cistern in the same room as a water-closet, nor should it be brought to the reservoir from the roof or from a pump in leaden pipes. The same caution in regard to leaden service-pipes is important. In connexion with cisterns a suggestion originally made in the *Lancet* may be repeated. When the family is from home the cisterns are seldom emptied; a small quantity only is withdrawn every day, generally from one cistern—the most accessible—the others being left unused. Consequently in these the water becomes stale and, even in the favoured cistern, the quantity of fresh water admitted daily is too small, in proportion to the stale water left unused, to be either agreeable or wholesome. The family returns to town after a long absence and the water in these cisterns is, in many instances, used by them when it must be in a very bad condition from long storage. Householders should give injunctions to their servants, or those left in charge, to draw off the water in all cisterns in the house at least once a week during their absence and, before returning, to have the cisterns themselves thoroughly cleaned out. By doing this they will ensure a wholesome and fresh supply of water for themselves, while the water poured into the drains by these weekly flushings will keep them clean and sweet and carry off any impurities or sewer-gas. They will also benefit their neighbours by returning to the main sewers a quantity of water for flushing at a time when it is much required. In entering a new house, no water should be used for drinking or cooking from new lead pipes for at least one month after the water has been otherwise used daily. Even when pipes have been long in use, water that has been standing in them had better be run off before any is used for drinking or cooking. Tin is sometimes used as a lining for lead pipes, although not so generally as might be desired, for, unlike lead, tin neither dissolves in nor poisons the water. When for any reason the water kept in cisterns of doubtful purity has to be used temporarily, the danger of its causing disease may be much diminished by boiling it for half an hour shortly before it is drunk and also by filtering through animal charcoal. It should be always borne in mind that if cholera, cholera infantum, typhoid fever, diarrhœa, or dysentery, appear in the members of a household without obvious cause, the chances are, at least two to one, that there is something wrong with the water supply, the milk supply, or the drainage of the house itself. Every vessel, large or small, used in keeping water, should be cleansed thoroughly and often, or you may get living animals in the water, or dead animal matters, which may be far worse for the health. Water-vessels should always be covered,not tightly, however, so as to keep out the air, but so as to exclude dust. No cistern or butt should have a waste-pipe connected with a drain or sewer, for the poisonous air from the sewer or drain will find its way thus into the water, will be absorbed by it and will cause it to be poisonous and unwholesome. In the same way the bad air from a water-closet may spoil the water of the cistern supplying it. Water for drinking should never be kept in close cellars, in badly-aired or crowded rooms, or in the chambers of sick persons. For use by invalids, fresh water should be drawn whenever it is wanted for drinking purposes.

WATER BLISTERS

See HERPES.

WATER-BRASH, OR PYROSIS, is the rejection from the stomach of a quantity (varying from a few mouthfuls to as much as a pint or more) of a clear, tasteless fluid. The symptoms are a feeling of tightness, not unaccompanied with pain, across the stomach and a sense of nausea which often amounts to a desire to vomit, with difficulty repressed. The condition is due to the hurried bolting of food that needs thorough mastication, or to dietetic error. The avoidance of either habit will preclude the trouble. But if the symptoms continue in spite of greater care in eating and diet, then two tablespoonfuls of the following mixture thrice a day before meals and continued for a few days will effect relief :—Carbonate of bismuth, 5 grains ; carbonate of magnesia, 10 grains ; mucilage of gum, 1 drachm ; peppermint water to one ounce : shake well.

WATER CLOSETS

Earth should always be used instead of water in country places ; it is preferable in every way. To keep water-closets moderately safe, the first thing is ventilation of the sewers ; if not, they ventilate themselves into the house by means of the water-closets. A pipe should therefore lead from the house sewer to the highest point of the building. From time to time the pipes and traps ought to be examined, to see that the former are entire and not leaking and that the traps are in working order. Some disinfectant, fluid or solid, should be used at least once every day. The best is carbolic acid, in powder or in solution.

WATER DRESSING

This is the application to a sore or wound of a piece of lint, soft linen, or charpie, saturated with water and covered over with oiled silk, or thin india-rubber cloth, to prevent evaporation or the escape of moisture into the surrounding bed-clothes. The lint should be double and of a size according to the surface to be covered. The waterproof material should be cut a little larger than the lint. Care should be taken that none of the lint projects from under the edge of the covering, for if such be the case the water will escape into the bandage and the clothes, leaving the lint dry and sticking to the wound. Over the whole may be placed a common roller bandage. Water dressing should be renewed twice in every twenty-four hours, or more often if there be much discharge.

WATER ON THE BRAIN

See HYDROCEPHALUS.

WEANING

About the ninth month the mother should begin to wean her child. Frequently this is not attended to, and many mothers are found suckling their children till they are fifteen or eighteen months old, or even older. This prolonged suckling has its origin in the popular notion that so long as the infant is at the breast pregnancy cannot occur. This notion is, however, devoid of scientific foundation. There is nothing to prevent the occurrence of pregnancy at this time. Indeed, it may not be infrequently observed that those women who thus unnecessarily prolong the period of suckling are already pregnant and their milk, deteriorating in quality, becomes unfit for the child, while the long-continued suckling is telling upon their own constitution. For a few weeks before weaning, accustom the baby to the use of the bottle by giving it at least one meal a day from the bottle. Where this plan has not been practised, let the weaning be promptly carried through. The baby may protest at first, but, as has been said, it will rather take the bottle than starve. Its diet after weaning will still largely consist of milk. At about the age of eleven months the bottle may be discarded for the spoon and the dietary enlarged to include bread and butter, mutton broth, beef-tea, gravy and milk puddings, milk, however, being yet the mainstay.

WEIGHT, HEIGHT IN RELATION TO

See HEIGHT IN RELATION TO WEIGHT.

WEIGHTS AND MEASURES

See MEDICINES, WHAT TO BE CAREFUL ABOUT IN GIVING.

WENS

Wens on the scalp and face are greatly distended sebaceous glands, forming little sacs containing more or less cheesy matter. Sometimes these have an opening from which this may be squeezed. The treatment otherwise is by excision.

WET FEET

The evil results of wet feet may often be diminished, or entirely averted, by taking off the damp shoes and stockings, rubbing the feet dry, toasting them before a hot fire, or hot blast of air from a stove, and putting on dry, well-warmed stockings and shoes as thick or thicker than those laid aside. To be effectual, however, this routine must be attended to at once, without waiting to become rested after fatigue. Even a delay of five minutes may be sufficient to annul all benefits from such a drying process and permit of the congestion of some internal organ which may lead to serious or fatal illness.

WET NURSE

For various reasons a mother may find it necessary to obtain the services of a wet nurse. As the choice of a person to fill this position is one of very great importance and as many of the points which determine the choice are not so apparent to the untrained eye, the selection of a wet nurse generally devolves upon the doctor. This is the safest course. The nurse should be perfectly healthy and free from the taint of hereditary or other constitutional disease, in order that the child's constitution may not be contaminated. That the mother may be aided, however, in making her selection, Dr. Edward H. Parker, in his *Handbook for Mothers*, offers the following suggestions :—

1. The nurse's milk should be of about the same age as that of the mother ; that is, her child should have been born at about the same time as the one she should nurse. The milk furnished by a woman varies at different times, changing from the first that is drawn to the last. A woman with a new breast of milk—that is, who has just been confined—is not fitted to nurse a child who is six months old ; neither is a woman with a six months' breast of milk, the best fitted to nurse a newly-born babe. This is, however, a consideration of less importance after the infant is six months old. After that time it is safer to choose a woman who has not nursed more than six months.

2. If there are two women, in other respects of equal qualifications, one of whom has a child still living which she has put out to nurse, while the other has lost her infant, without hesitation select the latter.

3. The age of the nurse should not usually be under twenty years, or over twenty-eight, this being about the period at which they are most likely to yield a rich, healthy milk.

4. A woman with brown or black hair should be selected in preference to one with light or red hair ; and of the last two, the former should have the preference. The reason is simply this, that light-haired women, although they often have more milk than those who are of a darker complexion, do not furnish in it so much nourishment ; their milk is more watery, though it may be more abundant. Red-haired women are apt to be quicker to become angry and to have tempers not so well regulated as others.

5. The nurse should be of good form and plump, with a white, hard breast, marbled with bluish veins and a nipple of good size, perfectly free from cracks and eruptions, with gums firm and red, and with good teeth. The general appearance of the face should be that of health.

6. It is scarcely necessary to add that it is desirable to select for a nurse a woman of gentle disposition and of common sense and intelligence, rather than a stupid or irascible one.

It may be of use to some readers to say that wet nurses very rarely need beer, ale, or other malt liquor, to enable them to perform their duties. These drinks are often necessary for a feeble mother, to enable her to bear the drain upon her ; but a woman who requires them ought not to become a wet nurse. The habit of taking stronger liquors, as brandy, gin or whisky, is a good and sufficient reason for rejecting a nurse. Their influence on the child is injurious.

WHITE LEG

is a form of inflammation of the large vein of the leg, sometimes occurring in nursing women and hence also known as Milk Leg. The left leg is more commonly affected. It is greatly swollen, of a dull white colour, the skin stretched and shiny, and feels heavy, stiff and responds painfully to movement. Hot fomentations and rest for a lengthened period are the main treatment. Friction with vaseline tends to reduce the swelling and pain and, when the patient is strong enough to get about, she should wear a firm, well-applied bandage.

WHITLOW

See FINGER, WHITLOW ON.

WHOOPING COUGH

Whooping cough, as it occurs only once in the same person, is most commonly a disease of childhood. It may be regarded as an aggravated form of cough. Whooping cough has been known since the middle of the seventh century and has always been prevalent in the United Kingdom ; it seems to be most fatal in those years in which measles are also prevalent. It is predominantly a disease of infancy, the vast majority of cases occurring under two years of age.

WHOOPING COUGH, SYMPTOMS OF

It usually begins with general febrile symptoms, as headache, listlessness and heat of skin, but is very early accompanied with cough, which is at first of an ordinary character and the case resembles one of catarrhal fever. In many cases, however, the febrile symptoms are so mild as not to be noticed and a slight cough is all that is observed for many days. After a little time, however, the cough assumes its peculiar character and the whoop, occasioned by a long, protracted inspiration, satisfies any one who has once heard it that the disease is whooping cough, or, as it is sometimes called, kink-cough. In mild cases the paroxysms or fits of coughing occur only once or twice a day, a little phlegm is expectorated each time, the fever is slight or absent and, after one or two weeks, the disease is gone, without any, or with very little disturbance to the constitution. In severer cases the cough is frequent and each paroxysm most distressing, the little sufferer clinging to something for support, the breathing being interrupted almost to suffocation, the countenance becoming turgid and approaching to lividity, until the expectoration of some viscid phlegm and possibly the vomiting of the contents of the stomach relieve the breathing, restore the circulation and remove all present apprehension of danger. Such violent paroxysms may recur only two or three times a day, or as many times every hour, and the attendant fever may be of every degree of severity indicative of more or less inflammation of the lungs. Thus the principal risk in whooping cough arises rather from such complications than from the violence of the fits of coughing. In some seasons there is much more tendency to this inflammation than in others and then the fatality of the disease is greatest. After the chief severity of the attack is over, the disease becomes chronic and the peculiar spasmodic cough may occasionally be heard for many weeks or even months. There is also a remarkable tendency in subsequent coughs arising from common cold to assume the whooping character for months and sometimes years afterwards. If the disease set in in the late autumn it may be early summer before complete cure is established. On the other hand, a summer attack will not last as a rule more than six weeks.

WHOOPING COUGH, TREATMENT OF

In all cases it is best for the child to keep in the house as soon as the malady has declared itself ; in a very mild case it need not be kept in bed, but it should be in a room of warm and even temperature and protected from draught ; it can then be allowed to play about as it likes. If there is any lung affection, it must be put to bed and hot linseed poultices applied to the chest. Other children must not be allowed to come near it unless they have had an attack previously. The child must be fed in the usual way, but solid food should be given sparingly. When the infant is emaciated and has some other disease, as rickets, etc., the treatment proper for that disease may be continued. Steel wine is very valuable in cases of whooping cough and more especially when there is no fever and during convalescence ; it may also stop the diarrhœa which is now and then present. If there is any prolapsus of the bowel, the part should be sponged lightly with a solution of sulphate of iron and at once returned. This is often due to the excessive diarrhœa. Numberless remedies have been tried to cure whooping cough, but none has succeeded. Ipecacuanha wine is valuable in promoting the expectoration of phlegm. The most hopeful remedy is belladonna, if given in large doses and the symptoms watched ; children can bear more of this drug the younger they are, but it is a dangerous remedy and can only be given with the greatest care. Change of air and scene is of itself very helpful in most cases, provided the weather is favourable and every precaution is taken not to spread the disease. Warm clothing must be worn and during convalescence a nourishing diet, moderate exercise in the air when fine, a tepid bath in the morning and a tonic, as steel wine or codliver oil, must be enjoined. The period of quarantine is necessarily lengthy and no child which has been exposed to infection can be considered safe for at least three weeks after such exposure.

WHOOPING COUGH, LINIMENT FOR

See EMBROCATIONS.

WHOOPING COUGH, MIXTURE FOR

See MIXTURES.

WHOOPING COUGH, REMEDIES FOR

Many cases of whooping cough have been successfully treated by the following syrups :—

Take the strongest West Indian rum . . .	1 pint.
Anise oil	2 ounces.
Honey	1 pint.
Lemon-juice	4 ounces.

Mix. Dose for children, one teaspoonful with as much sugar and water, three or four times a day; for adults, one tablespoonful.

The following prescription has been highly recommended :—

Hydrocyanic acid . .	6 drops.
Extract of belladonna .	2 grs.
Paregoric elixir . . .	3 drachms.
Syrup of balsam of tolu	1 ounce.
Water	3 ounces.

Mix. A teaspoonful three or four times daily.

Some doctors prescribe nitric acid, chloral and bromide of ammonium, one grain for each year of the child's age ; and these remedies and judicious diet will greatly relieve the distressing spasms. If restless at night, give the child a warm bath.

To relieve soreness in the chest,

rub it with the following mixture :—Half an ounce of oil of amber ; half an ounce of oil of cloves ; one ounce of olive oil ; two teaspoonfuls of laudanum. The diet should consist principally of barley water and whey.

When whooping cough is not cured within a month, try a change of air, even from a pure country air to the air of a smoky, gas-laden town. Some persons assert that the best remedy for an obstinate case of whooping cough is for a child to live the greater part of every day in gas-works. Sea-breezes will often as by magic drive away the disease.

WIND IN THE STOMACH

See FLATULENCE.

WINDPIPE

After passing through the pharynx, the air passes through a rigid tube (larynx and trachea), the windpipe, open at the top—except at moments of swallowing and during certain accidents—and always distended by stiff plates and rings of gristle (cartilage), which surround it more or less completely. Thence the air passes along the subdividing continuations of the air-tube, or windpipe (primitive, diminutive, and terminative, or ultimate bronchial tubes), until it reaches the air cells of the lungs, which are grouped in series around each ultimate extremity of this series of air-passages. These successive divisions of the air-tube are progressively smaller and smaller, the terminal ones being about one-fortieth of an inch in diameter. The windpipe is a hemispherical, or tunnel-shaped tube, running down the front part of the neck, dipping behind the breast-bone into the chest, where it divides and subdivides into the bronchial tubes. As respiration must be continuous, it is essential that this tube should be always open : and it is therefore strengthened by a series of hoops of cartilage in its front, or hemispherical portion, while its posterior, or flat portion is membranous and flexible, so as to yield to the pressure of articles of food or drink which pass down the gullet, or food-pipe, which is just behind it. Most popular accounts of this tube convey an impression that it is circular rather than more or less hemispherical.

WINES, UNFERMENTED

Unfermented wine, properly prepared, consists of three-quarters water and one of sugar, but no alcohol ; but it should be kept in a cool place in glass bottles, well stopped and placed upside down. "There are many circumstances," remarks a medical writer, "in which invalids would be greatly benefited by the use of the pure unadulterated wine of the Scriptures, unfermented and containing no alcohol whatever, thus made :—Pick out the most perfect grapes, press out the juice rapidly, put it into a closed vessel, which place in another vessel of water, raise this to a boiling heat for ten minutes, strain through a woollen bag while hot, put it into bottles, cork and wax, then put them in a cool place, top down, and it will keep pure for a long time if the directions are well followed. Such wine is greatly nourishing to the weak and the sick." It must not be supposed from this, however, that the wines mentioned in Scripture were without alcohol, the product of fermentation, else why the warning against putting new wine into old bottles or skins of leather, which would yield to and be rent asunder by the action of the wine when in fermentation ?

WISDOM TEETH

See TEETH, PERMANENT.

WORM POWDER

See POWDERS.

WORMS

Several kinds of worms infest the intestinal canal of man, but the chief are the ascaris, or small white thread worm, mostly found in the rectum, or last gut ; the lumbricus, or long round worm, usually found in the small intestines ; and the tænia, or tapeworm, which occupies the upper end of the intestinal tube and is occasionallyfound in every part of it.

WORMS, CAUSES OF

Worms most frequently appear in those of relaxed habit, especially in those whose digestive organs are weak. Excessive use of vegetable food, of fruits, of sugar, or any other saccharine substance, very strongly favours their generation. The reason why children are more infested with them than adults appears to be chiefly because they are allowed to indulge in eating sweet things, to the partial or total neglect of salt.

WORMS, DISTINCTION OF

Simple disorders of the stomach and bowels will often produce all the symptoms described below and in some cases it is difficult to ascertain whether worms do or do not frequent the bowels, when none has ever been discharged. In such circumstances we can determine the real nature of the case only by an attentive consideration of all the symptoms and the patient's habits, more particularly with respect to the use of food.

WORMS, SYMPTOMS OF

Worms can hardly exist in so sensible and highly organized a part as the intestines without producing some degree of irritation ; and we are certain that irritation cannot take place in that canal without producing, sooner or later, and in a greater or less degree, disagreeable effects in various parts of the system and especially in the stomach and head. Hence, these animals frequently occasion a variable appetite, which is sometimes deficient, at other times voracious. Other symptoms helping to indicate their presence are pains in the stomach, fœtid breath, nausea, headache, vertigo and giddiness, cough, irritation about the nose and anus, disturbed sleep, and a disordered state of the bowels. In children hardness and fulness of the belly often occur, with frequent slimy stools and sometimes convulsive fits. In adults, as well as in children, worms not infrequently give rise to severe epileptic fits and sometimes occasion great emaciation.

WORMS, GENERAL TREATMENT OF

The fundamental principle in the treatment of worms is to strengthen the system generally and the stomach and intestines in particular ; and thus not only to dislodge them, but to render them incapable of reproduction. On this principle it will be found almost invariably that those medicines and plans of treatment are the most eligible which tend to invigorate the whole system, at the same time that they expel the worms. The principal remedies of this kind are salt, preparations of iron, sulphur and camphor, employed in conjunction with a suitable diet and regimen. A great deal has been said about the efficacy of certain medicines in the cure of worms, but Dr. Graham believes that there are few cases which will resist the proper use of salt, more especially if the usual means of strengthening a weakly constitution be resorted to and saccharine substances be avoided as much as possible. Salt is a natural and necessary stimulant to the digestive organs : it excites them to a healthy and vigorous action and is particularly obnoxious to all kinds of worms. Persons troubled with these animals should be careful to increase their quantity of salt at each meal ; to lessen that of every kind of sweet food ; to avoid partaking much of vegetables ; to regulate the bowels by the occasional employment of a mild pill and to avail themselves of the usual means of strengthening the constitution, by having recourse to active exercise daily, early rising, the use of the cold or tepid bath, etc. These measures are highly advisable and useful, whatever kind of medicine be employed. At the same time, a dose of salt and water—for example, an ounce or two of common salt, dissolved in nearly half a pint of water—should be taken in the morning fasting and repeated at the end of three or four days. This will generally act as a purgative and will certainly bring away almost every kind of worm. If necessary, the repetition may be extended to the third or fourth time and, in very severe cases, the quantity of salt used at each dose may be increased to three or four ounces. This plan is applicable to the cases of children, as well as to those of adults. Children should be restricted in the use of sweet things and taught to make a free use of salt at almost every meal. As a purging potion for young children, half an ounce of salt dissolved in a quarter of a pint of water will usually be sufficient.

WORMS, REMEDIES FOR

Preparations of iron are sometimes very useful in expelling worms and in strengthening the alimentary canal, so as to preclude their reproduction. They are, in general, very appropriate remedies when considerable debility has been induced from the irritation excited by the worms. Camphor has been highly praised for its virtues in cases of worms by many doctors. Eight or ten grains of this substance may be dissolved, by means of a few drops of rectified spirits of wine, in an ounce and a half of water, taken twice or thrice a day. This may be tried alone, or taken in the intervals between the use of the salt-and-water purgative. It appears to be particularly efficacious in the destruction of the long round worms (*lumbrici*). In the small white thread-worm, so often infesting the last gut in children, half a pint or a pint of lime-water should be injected once a day and a dose of castor-oil be given once a week for three or four weeks. Or, instead of the lime-water, a strong decoction of worm-seed, or a solution of salt and water may be injected after the same manner. This plan is generally successful. The bristly down of the pods of cowhage is also a powerful remedy for worms. A great number of other medicines have been recommended, as tin-filings, male fern, tansy, tobacco, etc., and several of them are useful ; but we think the preceding remedies are the most powerful and the best. Many patent medicines sold for the cure of worms are composed chiefly of calomel or some other active purgative. They are, no doubt, sometimes beneficial, but the foregoing measures are far more eligible.

WORMS: ROUND WORMS

The round worm, in shape, size and general appearance, is very much like the common earth-worm, but the latter is redder and not so pointed at its two extremities ; the earth-worm also has little projections on its under surface, which probably aid it in locomotion, while they are absent in the parasite. It is found in the small intestines, or that portion of the alimentary canal which is next to the stomach ; they may occur singly or several together and are either vomited up or passed by the bowel ; it is more common in children than in adults. A purgative or a dose of rhubarb or aloes will generally suffice to get rid of the worm. When the worm is present, the patient has generally colicky pains in the stomach, fœtid breath, with nausea, or vomiting, and bad appetite. Santonin is, perhaps, the medicine most certain to expel this worm ; it may be combined with a purgative ; it forms the chief ingredient in the so-called " worm-powders."

WORMS: TAPE-WORM

The presence of tape-worms may be known by the evacuation of small pieces consisting of one or more segments, of a white colour, longer than they are broad and not unlike pieces of tape. There is generally more or less hunger, unsatisfied appetite and a feeling of discomfort in the stomach. The worm affects the adult more commonly than children ; various remedies have been recommended ; but it may generally be easily got rid of by a dose of a preparation of male fern taken early in the morning, while the patient has been fasting a few hours previously. It should be remembered that the worm diminishes in breadth near the head and the neck is, therefore, long and slender ; and so when the parasite escapes, this part should be carefully sought for, as then the patient may be sure that the white worm has been expelled and will trouble him no more. Pieces several feet in length may come away, while the head still remains to form a fresh worm afterwards. The parasite should be burnt when it is expelled. For tape-worm oil of turpentine is an effectual remedy. An ounce may be given to an adult, or half an ounce to a child and the dose may be repeated to the second or third time in the course of a fortnight. It may be swallowed simply suspended in water. It is seldom advisable to repeat it more than three times, unless under the direction of the doctor.

WOUNDS

Cuts are the most common injuries in a family and there should always be the means in readiness for meeting their occurrence. A supply of old linen and long bandages about two inches in width, a few small soft sponges, needles and thread and a roll of adhesive plaster should be kept together and always so accessible as to be at hand on every emergency. When the bleeding from a cut is very abundant, the first thing to be done is to check it. If the blood is from a vein, as can be seen from its colour, which is dark and purplish, the mere application of cold water, with pressure, will ordinarily staunch it. Should the wound have clean edges, these must be brought together with precision and so kept by separate stitches. If there are courage and skill enough at home to perform

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the operation, or by the simpler, though less effective, means of slips of adhesive plaster. When this is done, cover the wound with a bit of soft linen, moistened with cold water and folded two or three times; finally, bind up the whole with frequent turns of bandage, pressing rather upon the injured than the uninjured part. If the cut should be ragged, with loss of skin, it will be useless to attempt to unite its edges and the best thing to do is to apply bits of folded linen dipped in cold water. Take this as a general axiom, that recently-divided surfaces in living animals, brought into close contact and retained there, will very generally unite and that speedily; and this whether the corresponding portions or others of the recently-divided parts are brought into opposition. The success, therefore, in treating flesh wounds will mainly depend on our being able to bring the parts more or less into their natural position and retaining them there till they have united. Although hæmorrhage, or bleeding, to a great extent, is almost always the concomitant of a wound, still, in simple wounds, where no large vessel is opened, the hæmorrhage is very slight and is effectually checked by the means used for the proper treatment of the wound. Wounds in fleshy parts may be large and frightfully gaping without any serious or alarming hæmorrhage. In all such, as well as in every flesh wound of less dimensions, first strip the part of its clothing, wash away the blood with cold water and carefully remove from the wound all extraneous matter, whether introduced by the nature of the accident, or, what is more usual, the ignorant officiousness of the patient or his friends. Sometimes a portion of the clothes and more frequently a portion of the instrument, or other substance by which the wound was inflicted, as part of the blade of a knife, a piece of glass, a splinter of wood, or, at other times, particles of sand or gravel may remain in the wound. These should in every case be washed away, or extracted, when it can be done without violence. Blood, dirt, or gravel may be removed by careful washing with a sponge and cold water. Other extraneous bodies which cannot be removed by the fingers, will require a pair of forceps, or pincers, according to the size of the foreign matter. It will seldom, but may sometimes, happen that you cannot easily effect this, either from the depth or peculiar situation of the wound, or from the extraneous substance having been forced into the bone; in such a case desist rather than use violence and leave it for the surgeon to decide whether to remove it by more forcible means or by a counter-opening, or whether to leave it for the present in the wound. Having removed all foreign matter, having brought the edges of the wound into close and natural opposition and having taken effectual means to retain them there,you will have done all that such cases require, and all that could be effected by the surgeon. The means of retaining the divided surfaces in the desired position must vary a little according to the extent and situation of the wound. When situated on the scalp, it will be necessary to cut very close, or, what is still better, to shave off the hair for some distance around the edges of the wound, or the hair will prevent your plasters from sticking close. If the case be a slight cut on so small a member as a finger, or a toe, a simple narrow bandage of linen may be all that is required, or, at all events, a narrow slip of adhesive plaster carried round the finger or toe will prove sufficient. If the wound be more severe and the divided edges irregular, or if it be on the surface of a larger limb, or on the head, or on the trunk of the body, adhesive plaster of a width and length adapted to the case will be required, and the proper application of it will call for some judgment and a good deal of care and nicety. Several narrow slips are preferable to one broad one and the length should be sufficient to ensure its close adhesion to the sound parts beyond the wound. When the wound is considerable and situated on the arm or leg, it is advisable to have the slips sufficiently long to go more than round the limb. Should the parts in the neighbourhood of the wound swell and become painful a day or two after the accident, apply rags wetted in weak Goulard lotion, or in simple cold water, freely over the dressings, give the patient a dose of salts and place him on a low diet. This will reduce the inflammation and all will go on well ; but do not persist in the cold application after the swelling has subsided and the pain abated, for be it always remembered that some degree of pain and tenderness is absolutely requisite to the healing of every wound. After having thus described the simple and most approved mode of treating recent wounds of fleshy parts, we need scarcely warn you against the use of spirits, salt water, vinegar, or any of the nostrums of quacks, with which every one is assailed, as specifics for making wounds heal speedily. No bathing or washing in the first instance can do good but by removing foreign matter ; water does this effectually and with the least pain. Salves, cerates, or anything else interposed between cut surfaces, interfere with nature and prevent healing, and other application than adhesive or sticking plaster is worse than useless. When the wounded part is at the same time much bruised by the accident, it will be advisable to foment with warm water for an hour or two before using the adhesive plaster, and the slips must be used with some caution and be drawn less tightly. It will be well to apply poultices over the dressings, or to cover them with folds of linen soaked in hot water and to put over these a covering of oiled silk for the purpose of retaining the warmth and moisture. In the case of a wound connected with fracture of a bone or dislocation of a joint ; of a wound in the head, where the patient is senseless or confused ; or of a wound that penetrates the cavity of the chest or abdomen, or in which any important organ may be supposed to be injured, send immediately for surgical assistance. In the meantime, remove the patient to his home, lay him on his bed and carefully and gently strip off the clothing from the injured part. Whether anything be permanently lodged in the wound or not, the proper applications will be warm fomentations and poultices ; here again we must caution you against nostrums. It is not uncommon to apply the term drawing to certain hot stimulating unguents and plasters and several such are extolled for their power of bringing whatsoever is lodged in a wound to the surface ; but take note that this is always done and only done by a natural process of inflammation proceeding to suppuration, or the formation of matter, and the consequent absorption or removal of the interposed parts between the substance and the surface of the skin.

This suppuration may be to any extent, according to the size of the body lodged in the wound and other circumstances, from a small pustule, containing only a single drop of matter, to a large abscess containing pints. Should an artery be wounded, as will soon be discovered by the profuse and jerking issue and bright red colour of the blood, let a surgeon be sent for at once. In the meantime, don't let the patient die from loss of blood, but bind a handkerchief firmly on the limb between the wound and the body, and insert a ruler, or stick of any kind under the handkerchief and twist and tighten it until the stream of blood is evidently checked. When the wound is elsewhere than upon the legs or arms and its bleeding cannot thus be controlled, the best thing to do is to apply cold water or ice to it, and pressure by means of a succession of linen pads, folded in squares and gradually increased from the lowest, which should be of a size sufficiently small to come into close contact with the injured part. This application will form a kind of pyramid, which must be kept in its place by a bandage firmly applied. Repose from action of all kind must be enjoined upon the patient, who should be kept perfectly quiet, lying down, but not too warmly wrapped up, until the arrival of the surgeon.

WRIST

The joint which connects the hand to the arm and on which the hand turns. It is formed by the lower extremities of the ulna and radius, which are, respectively, the large bone and the small bone of the forearm.

WRIST DROP

See LEAD, POISONOUS EFFECTS OF.

WRITER'S CRAMP

See SCRIVENER'S PALSY.

WRY NECK

This is a distortion due to irregular muscular action. It generally comes on gradually in infancy and consists in a shortened and contracted state of the sternomastoid muscle of that side to which the head is inclined and from which the face is turned. Electrical treatment may effect considerable relief, but the condition calls for the doctor's advice.

YEAST POULTICE

See POULTICES.

YELLOW FEVER

Yellow fever has also been known as the Bulam fever, hæmogastric fever and black vomit. It was first recorded in the West Indies in 1647 and since then has been more or less prevalent up to the present time. In St. Thomas and St. Domingo the disease seems to be permanently located. It appears to affect those who live in the low country more than those on the hills ; it does not spread, as a rule, to parts more than 3,000 feet above the sea. A certain amount of heat is essential to the development of this fever ; few cases are observed where the temperature is below 72° F. Dr. Maclean, who had much experience of diseases in the tropics, thus lays down the differences between yellow and remittent fevers :—"Yellow fever is specifically different from remittent fever. Yellow fever is unknown in India, where the malarial fevers abound. There is in yellow fever an absence, for the most part, of that periodicity which is so characteristic of true malarial fevers—that is, the remissions and exacerbations. Malarial fevers exist and are destructive at a temperature at which yellow fever is at once destroyed. Albuminous urine is almost invariable in yellow fever, only occasional in remittent. There is in yellow fever a great deal of bleeding from various parts of the body ; in remittent fever this is generally absent. Quinine has a great power over the malarial fevers, but not over yellow fever. Men suffer from malarial fevers again and again ; second attacks of yellow fever are very rare."

YELLOW FEVER, SYMPTOMS OF

Yellow fever is an infectious continued fever, beginning with languor, chilliness, headache and pains in the back ; the countenance is flushed and the eyes are moist and suffused; the skin gradually acquires a lemon or greenish-yellow colour ; there is generally a wandering of the mind and often there is delirium ; the patient is restless and watchful, or he may pass into a state of drowsiness and then coma ; there is an uneasy feeling at the pit of the stomach, accompanied with vomiting ; there may also be suppressed hiccough and shrieking or melancholy wailing.

YELLOW FEVER, TREATMENT OF

The patient should have a hot bath in the first stage and then, going to bed, he should have warm drink to encourage sweating ; this may be followed by a purgative, so as to have the bowels well opened. Mercury need not be given, nor is quinine of any use. In fact drugs are better avoided, though castor-oil and calomel may be of service. The sickness is very distressing, but may be relieved by lime-water, or a few drops of chlorodyne or chloroform ; creosote and hydrocyanic acid do not seem to be of any use for this purpose. Stimulants must be given according to the needs of each case. The great objects in treatment are to sustain the vital powers, to moderate the febrile excitement and to check any distressing symptoms that may arise. A free exposure to the purest air attainable is of great moment in every case and stage of the fever and, in the advanced periods, is perhaps more to be relied on than any other resource. It is, consequently, highly advisable that when a patient is attacked with the disease in a low unhealthy situation, he should, if possible, be directly removed to a higher and more healthy spot, so that he may enjoy the advantage of the air during the day. In general, no danger need be apprehended from removing a patient labouring under yellow fever through the open air ; on the contrary, such an exposure is very generally more or less beneficial. The utmost precaution is necessary against cold, chill and draughts. Mineral water or ice may be given to quench thirst, but solid food must not be allowed until the doctor's express sanction has been obtained.

ZONA,

another though less customary name for Shingles or Herpes zoster.

ZYMOTIC DISEASES

(Greek, **zume**, "leaven"), acute specific contagious diseases due to the growth and multiplication within the human body of a germ or poison which acts as a ferment. They include the whole class of epidemic, endemic and contagious diseases, such as smallpox, diphtheria, scarlet fever, measles, whooping cough, fevers and diarrhœa. The term was apparently first employed in 1842 by Dr. Williams Farr in a letter to the English Registrar-General.

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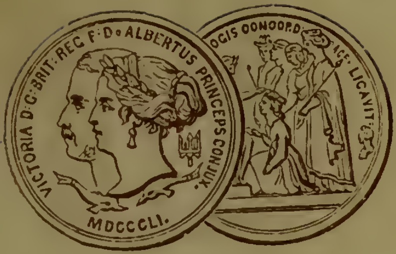
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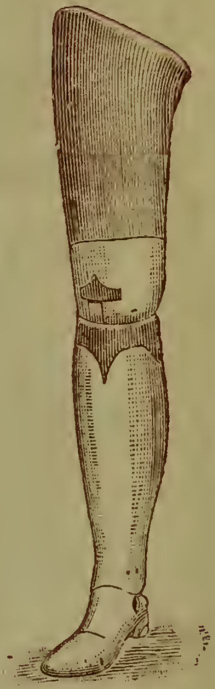

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